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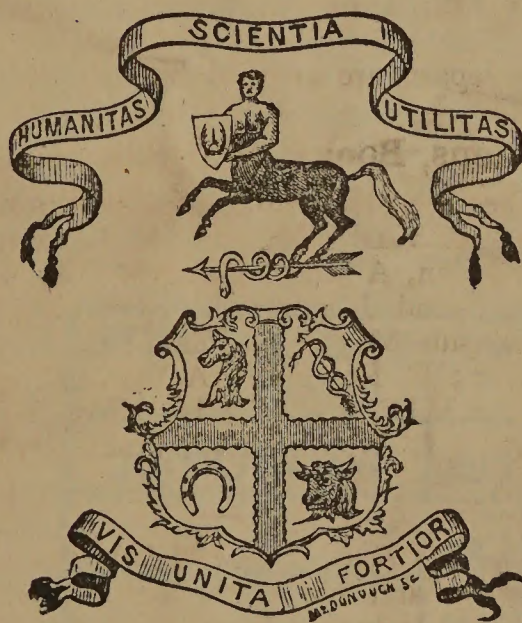
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THE VETERINARY JOURNAL

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JANUARY, 1886.

PHYSIOLOGICAL AND THERAPEUTICAL NOTES ON PHYSOSTIGMINA.

BY JOHN DOWLING ALLMAN, ASSOCIATE OF THE PHARMACEUTICAL
SOCIETY, LONDON.

IN the VETERINARY JOURNAL for November, 1882 (No. 89, page 317), Prof. Garside gave an elaborate translation of a very able and interesting article on the "Therapeutic Value of Physostigmine in the Treatment of Colic and Impaction" (by Prof. Dieckerhoff, of Berlin). Being struck at the time I read Mr. Garside's translation, I made a *précis* of it, and had it well circulated amongst all veterinary practitioners. This was the means of bringing it prominently before the profession, and, judging from the continuous use of the drug by most of our leading veterinarians, I am now satisfied that the notes Prof. Dieckerhoff published, regarding the action of this alkaloid, physostigmine, can be fully borne out by many eminent English veterinarians; and I am also satisfied that in this alkaloid we have one of the most important therapeutic agents that has yet been discovered, for the treatment of Colic caused by impaction from known or unknown causes. That it will not cure every case of Colic and Impaction Dieckerhoff was careful to point out, especially when Enteritis has succeeded Impaction, or when the muscular coat has lost its irritability, or where a foreign body may block the way; but he was also certain (so am I) that no other known agent is capable of exciting the intestinal peristaltic action with such certainty, or with so little danger to animals, as this alkaloid physostigmine. The substance now under consideration has been introduced into the new British Pharmacopœia, and is, therefore, an official or recognised preparation. It is an alkaloid obtained from the Calabar bean, by dissolving the extract in water, adding bi-carbonate of sodium, shaking the mixture with ether,

and evaporating the ethereal liquid. The subcutaneous injection which I made in November, 1882, and which has been so very extensively employed, contains one grain of the physostigmine in each fluid drachm, and is the minimum dose Dieckerhoff laid down. Respecting the advisability of this dose, I have had under serious consideration since first I introduced it, and have taken counsel with some of our most eminent veterinarians; regarding the physiological action of it, that it is a very powerful remedy, and requires very great care in its administration, will be observed from the following physiological and clinical notes, for which I am indebted to those gentlemen who have taken the trouble to note them for me.

Note 1: By Captain Russell, F.R.C.V.S., Grantham.—I have used the *Injectio Physostigmicæ Hypodermicæ* ever since it was first introduced by Mr. Allman, and from constant observation am able to speak very highly of its action. I am bound to confess that, in my experience, a dose of two drachms injected subcutaneously is a very dangerous dose. I feel convinced, in cases of Stoppage, given in such doses, the peristaltic action is increased with such violence as in many cases to rupture the walls of the bowel. In my opinion, forty drops is a good standard dose of the solution introduced by Mr. Allman. I have used it extensively in forty-drop doses, without any untoward result that I could possibly trace to the remedy; and in cases of Indigestion, Flatulent Colic, and Impaction of the Colon of the horse, I believe it stands alone as a remedial agent to afford speedy relief.

Note 2: By W. Woods, jun., M.R.C.V.S., Wigan.—You asked me for a few notes respecting a case I mentioned to you some time ago, and which I treated with your hypodermic solution of physostigmine. I have pleasure in forwarding the main features of the case from memory. The subject was a chestnut wagon horse, belonging to the Ince Forge Company. On the 1st of July, 1883, we were sent for to treat him for Colic. He was treated in the ordinary way on the 1st, 2nd, 3rd, and 4th, during which days he never passed any fæces whatever. His pains were of a dull character, not by any means continuous, very little sweating, and the pulse about sixty. He had no appetite whatever, and was not very thirsty. Examination per rectum revealed Impaction of the large bowel, so well marked that one could pit the impacted bowel through the rectum walls. As there was no passage of fæces, and no sign of any on the fifth day, although the horse had plentiful enemata and a fair quantity of purgative medicine, I determined to adopt the then new treatment of physostigmine. The results were really surprising, as showing the action of the drug. On the morning and on the evening of the fifth and sixth days, the horse received hypodermically a full dose of your prepa-

Notes on Physostigmina.

ration. Some ten minutes afterwards, on each occasion, the colicky pains became much exaggerated, and in from ten to twenty minutes longer the horse passed a full dunging of hard fæces. On neither of these days was there any other motion of the bowels. On the seventh day the horse was out of pain and dunging naturally. I may say that I have tried the drug since, often satisfactorily, but never with such remarkable results: This I attribute to the fact that the case seems to have been one purely of paralysis of the muscular portion of the large bowel, and thence one peculiarly suitable for the action of the drug.

Note 3: By A. S. Auger, M.R.C.V.S., Saxmundham.—An aged, chestnut mill horse, that had been cast in the stable the previous night, had eaten nothing that day; was taken out for a short journey in the mill cart with only half a sack of flour, but was unable to proceed, being very dull, head hanging over the manger, which had his morning meal in it. Extremities rather cold, and had not passed any fæces during the day. Pulse 75, and auscultation gave no abdominal sounds. I diagnosed the case as one of Intestinal Straining, and introduced two drachms of the physostigmine per jugular; this roused the intestines to immediate action, and the animal was quickly benefited by the escape of considerable flatus, and in half-an-hour's time by two dungs. He ate a bran mash in the evening, and after that continued to improve, and was in working order next day. No other treatment was used in this case.

CASE 2: By A. S. Auger, Saxmundham.—A polled Suffolk cow, suffering from the effects of eating old dried grass, roots, and oak twigs. On first visit she was very much distressed, so much so, that I considered that I had a case of Congestion of Lungs; but auscultation revealed nothing wrong in the chest. Back was arched, nose dry, coat staring, appetite quite gone, grunting very sorely, and loth to move. Pulse 80. Prescribed ordinary treatment for two days, and no alteration in her symptoms, except that pulse rose to 100, and I told the owner he must make up his mind to lose her; but, as a last resource, I would try a new remedy. I then introduced per jugular two and a half drachms of injectio physostigmiâ. This seemed to throw her into extreme distress, so much so that the owner thought she was dying; but in fifteen minutes she had passed three dungs (the first for three days) of ordinary consistence, and soon settled into a state of fair composure. On the following day she had eaten a little soft hay, and the grunting was less frequent, and general aspect much more cheerful; but she had not passed any more fæces. I then administered a pint of linseed oil, and introduced two drachms of the physostigmine into the brachial fascia. This did not cause nearly

the distress of the previous day ; but on the following day I heard that she passed three dungs in the course of an hour and half's time after the injection. The following day I found her much better ; she had eaten some hay, and a small allowance of moist bait. Pulse 72 ; and general condition much improved, but had passed no dung during the night or day. Gave another pint of linseed oil, and again introduced one and a half drachms of the physostigmiâ injection into the brachial fascia. This completed the treatment, as the animal got well, and came to her milk nicely.

I give these clinical notes, which are highly interesting ; and if compared with the cases Prof. Dieckerhoff quoted in his article, they will be found to fully corroborate his experience of the drug. We must now consider the physiological action of this powerful alkaloid.

Ist, Upon the muscular system.—Stimulates both voluntary and involuntary muscular fibres ; the irritability of the muscle rather than its working power being increased. Stimulates the muscular fibres of the heart ; but has no tendency to produce rapid paralysis of these fibres, as is the case with digitalis. Action on the heart counteracted by atropine, involuntary muscle and intestinal, stimulated and peristaltic action much increased. After a large dose, there is first exceedingly active movement of the intestines, then spasmodic contraction, so that the lumen is almost obliterated. This stage of contraction is followed by one of relaxation. It has similar action upon the involuntary muscular fibres of the stomach, uterus, and bladder, and pulmonary bronchi. The action upon the intestines is probably peripheral, the poison in the blood acting upon the muscular fibre, or on the ganglionic nerve cells in the intestinal wall.

Nervous system.—Brain, very little action ; may act as a slight irritant.

Spinal cord.—Has a paralysing action upon both the medulla and spinal cord. Excessive doses cause death by paralysing the respiratory centre in medulla. Very little action upon motor and sensory nerves.

Upon circulation.—Causes a rise of blood pressure, probably due to increased power of heart and contraction of the walls of small arteries.

Secretion.—Increases the secretion of salivary, mucous, sweat, and lachrymal glands ; probably acts on secreting cells themselves.

Eye.—Causes myosis and spasm of accommodation ; diminishes intraocular tension.

Therapeutics.—Physostigmine can be employed in all cases of Constipation due to atony of the intestinal muscular fibre, in

chronic Intestinal Catarrh, in Colic due to impaction of food or indigestible matters. In small doses it might be used with some success in Bronchitis and Dyspnœa, due to muscular fibres of bronchi. The dose of the injection I would limit to forty minims, except in very severe cases, and large cart-horses; then one drachm may be administered.

Besides those gentlemen above mentioned, I might just add that the remedy has been employed with considerable success by Mr. Polding, M.R.C.V.S., of Bury (Lanc.); Mr. M. Hedley, F.R.C.V.S., Darlington; Mr. Dudgeon, M.R.C.S., Sunderland; and many more eminent veterinarians.

SOME FACTS ABOUT ANTHRAX IN CAMELS.

BY RICHARD W. BURKE, M.R.C.V.S., A.V.D., CAWNPORE.

THE interest in the subject of Anthrax cannot flag so long as repeated outbreaks of the disease are witnessed in India; and one or two facts, revealed in the recent outbreak among Government Transport Camels in Cawnpore, may be worth recording, because they are thoroughly practical. It is well established, and, indeed, admitted on all hands, that diseases due to living contagia require certain conditions for their development, and that protection is afforded by a previous attack, as animals which have once suffered do not again take the contagion so readily; that is, the disease does not become enzoötic when introduced. How far this belief is justifiable it is difficult to say, and objections may be urged against the importance assigned to it. There is much which is mysterious in regard to this point; but this one fact is clear, that in practice we sometimes meet a contradiction of our most cherished theories. Immunity in theory notwithstanding, I was struck with the fact of several camels, which recovered from Anthrax, suffering again from the disease in the same outbreak, and in some cases showing not many days between the periods of recovery and next attack. At this point it becomes of great importance to establish *the period of incubation of Anthrax in Camels*. It may be assumed that this varies somewhat in different animals, and in different cases; but the evidence of the recent outbreak in camels clearly points to a period much below the recognised periods. On the 23rd September, I have reported two cases and two deaths; on the 26th, two cases and two deaths; on the 30th, one case and one death; on the 13th October, two cases and two deaths; and on the 30th October two cases and two deaths, in which the animals had recovered from a previous attack and

suffered a second time, after an immunity ranging from eleven days to a fortnight and three weeks.

Evidently, Anthrax cannot attack any animal unless that animal has some individual susceptibility to it; but such a susceptibility is not always removed by a previous attack, and may be even produced in a special way by it, which weakens the system, and tends to produce a more fatal attack.

By experience it is found that no patient is free from infection until six weeks from an attack of Typhoid Fever, Measles, or Diphtheria, and two months in the case of Scarlet Fever. What is the experience in regard to Anthrax in the lower animals? This is a most important point to settle, as it has a practical bearing in questions of segregation, time of discharge from hospital of convalescent animals, &c., in almost every outbreak of this disease. Can the power of infection last for some time after the animal is well again?—a most important fact to be determined. And how long will the infection last, and how long before the risk of giving it to other animals is over? A knowledge regarding the periods of incubation and convalescence is of importance in finding out the source of infection, and more especially in preventing risk of infection by exposure of healthy animals to one which may have just recovered from an attack, and be still convalescent.

The extreme importance of preventing, at every point, the chances of entrance of the contagion into Transport centres, cannot very well be exaggerated. Anthrax may be communicated by the sick animal when the severity of the illness is past, and while recovery is being perfected, since every secretion and excretion of the body, in this disease, is a carrier of infection. Too great care cannot therefore be taken, so long as cases of this disease appear, in preventing animals travelling to a new Transport centre which are, at the time, even more dangerous than when suffering from an acute attack and unable to move about.

I have another point of importance to mention:—

During the last outbreak I saw several cases of abortion in pregnant camels (*a*) following recovery from the disease, or (*b*) during convalescence and attack. The most important clinical observation which comes out of this fact, is the free passage of the bacilli from the dam to the foetus, independent of the barrier which is said to exist between them. And this is true in practice as in experiment. At the time of my observations, my attention was directed to the notes presented before the Académie des Sciences, by Professor Bouley, on the “migration of pathogenic microbes from the mother to the foetus and milk.” Not long since, it was believed that the placenta constituted an inseparable barrier between the mother and the foetus. Experiments very recently

made by M. Koubassoff,* and the observations in practice indicate that this is not so. I have examined the blood of the fœtus in several similar cases, in the outbreak alluded to, and always found the bacillus anthracis present in great numbers.

The lack of transmission by the milk is also mentioned as another point of agreement regarding Anthrax in the lower animals. Two cases of death from Anthrax, in the young, are reported in the recent outbreak of this disease in camels, where the mother had recovered from an attack not many days before the disease appeared in the young. In freshly-drawn milk of one camel completely recovered from an attack of Anthrax, I found on examination, the bacillus anthracis present in variable numbers on different days, finally disappearing altogether, until none could be seen on the fifth and on succeeding days. I may add that the milk was rendered thick and scanty, and contained more or less blood from the first, owing to the high fever present in this case. The temperature, according to experience of the present outbreak, rises to 101°, 102°, and 103°, F. (or two, three, and four degrees above normal), on the third, fourth, and fifth days following recovery, coinciding with the disappearance of the local exudations of this disease, and due therefore to fever of re-absorption. This fact has hitherto not been described in the case of Anthrax in the lower animals, and in man; nevertheless it was one of the first points to which my attention was drawn by the temperature readings of several cases of the disease in camels recently under observation, and which recovered from a severe attack. This fever is subject to modifications, however, depending on the amount of effusion present in different cases.

Experience of many former outbreaks of Anthrax, as well as of the present one, has stimulated inquiry on many points, which is of the utmost importance. Next to the effusions of Anthrax, and the fever of re-absorption, is perhaps the extreme emaciation peculiar to it, and which follows in the course of this disease, due probably to the high fever causing increased combustion of tissue. Usually the best conditioned animals are affected, and it is remarkable how rapidly the patients waste away, before one's very eyes, often within a few hours.

There is still a great deal remaining to be learned of the diseases of Transport animals in India, and the time is evidently at hand when our literature, as compared with so many lay productions of the past, must become more worthy of its name.

In regard to prognosis, my experience is that when head symptoms appear, the prognosis is most unfavourable; as

* *British Medical Journal, Lancet, VETERINARY JOURNAL, Quarterly Journal of Veterinary Science, &c.* 1885.

nearly all cases seen by me died within a few minutes, at most, from the time the head was first noticed to be thrown back, and the neck coiled, the position assumed before death.

Regarding External Anthrax, I think we will all agree with the general view, explaining the lesions of Anthrax by the presence and action of the bacillus anthracis, which is further liable to affect the skin like the germs of other infectious maladies. The greater number of the eruptions, boils, and abscesses, commonly attributable to a "weak state of the blood," the writer believes to be really due to the bacillus itself, when met with during outbreaks of Anthrax among any animals. I have examined, microscopically, the contents of the local lesions, and in every instance found the bacilli present in great numbers; and would remark that the proof of the presence of the bacillus in the external tumours, is of equal diagnostic value to that of the bacillus anthracis in the blood, and other tissues. The question, therefore, as to whether a given case is Anthrax eruption, can only be affirmatively answered if the presence of the specific bacillus can be demonstrated. The external form of Anthrax in the camel, according to our experience, appears to be less fatal than the other forms; and the few cases which died under my treatment were due, probably, to septicæmia, which supervened on opening the abscesses.

ACTINOMYKOSIS IN CORNWALL.

BY GEO. KINNELL, ASSISTANT TO D. MENZIES, VETERINARY SURGEON,
ST. AUSTELL, CORNWALL.

THE recognition of the disease Actinomykosis, as such, is comparatively recent. As it may be interesting to have further evidence of the extent to which it exists throughout the country, and as I am unaware of any accounts of the disease in Cornwall having been published, I think the notes and remarks on the following case may be worthy of record:—

On the 12th of last October I accompanied Mr. Menzies on a visit to one of our patients—a bullock, the property of Mr. Williams, Lewhirc Farm, Fowey. While at the farm we had a diseased tongue of a bullock handed us for our inspection. The bullock from which it was taken belonged to a neighbouring farmer, who had noticed that for some time previous to slaughter the animal was not eating properly and was losing flesh. In the condition of the tongue we recognised Actinomykosis. I took the following notes on the appearance of the organ: The tongue is of normal size, except at its middle part, which is slightly enlarged. Nearly the whole of the middle third is dense and indurated to the

touch ; the mucous membrane of the part is of an unhealthy, pale, reddish yellow tint, and in four places patches of it are absent, leaving weakly-looking humid ulcers, which, however, are quite superficial. There is evidence of other ulcers having existed, the smooth cicatrix of one being as large as a halfpenny. A few patches of blood discolouration are present, and on cutting down through them, I find the epithelium is separated from the underlying tissues by a collection of puriform matter. This, I presume, is due to the breaking down of nodules, and is the origin of the ulcers.

On making a longitudinal section of the tongue, considerable resistance is experienced in passing the knife through the indurated part. Except at the middle third, the whole of the surface exposed by the knife has a healthy appearance ; but at this part the surface is very pale, and has scattered over it numerous nodules of a light yellow colour, and varying in size from mere specks to large diffused masses. On passing the fingers over the surface the hard nodules are at once felt. The paleness of the section is principally due to the presence of these nodules and a greatly increased amount of connective tissue.

The odour given off from the organ is peculiar, being somewhat like that of badly salted meat. After allowing the tongue to lie for a few hours, the cut surface of the healthy parts remained quite normal in appearance ; but the cut surface of the middle third was streaming with serum, which, running down, collected in the bottom of the incision. Subsequent microscopic examination confirmed the diagnosis.

Mr. Menzies tells me similar cases have been frequent in his practice. During the last few years four cases have occurred among the stock of Mr. Williams, in one of which the bones of the face became affected and greatly enlarged, and the teeth were loosened and dropped out.

With regard to microscopic examination in such cases, I find that for the simple identification of the fungus, no stain is necessary. My plan of procedure is as follows :—Put a piece of the organ in methylated spirits for a few days. Cut from it a slice of considerable length, and about one-eighth of an inch in thickness. Stretch the slice firmly over the point of the thumb. This causes numerous small nodules to project from its upper surface. Cut off one of the smallest of these nodules, put it in a saucerful of water a few minutes, transfer it to a slide, and put over it a cover-glass, which must be pressed firmly down so as to flatten the nodule out. Drop a few drops of liquor potassæ on the edge of the cover-glass, then put the specimen under the microscope and examine. It will be noticed during the next minute or so, as the

liquor potassæ gets gradually sucked underneath the cover-glass, that the specimen clears up with the exception of the fungus or fungi in the centre, which, owing to a covering of cellulose, resist the action of the agent.

OBSERVATIONS ON SOUNDNESS.

BY R. H. DYER, M.R.C.V.S., LIMERICK.

(Continued from p. 411, vol. xxi.)

SPLINT, or Splent, as it is occasionally named, is a disease of the metacarpal bones, frequently met with; it is difficult to find an animal without a deposit of bony matter somewhere near the carpal joint. Every person having the least pretension to a knowledge of horseflesh believes himself fully competent to give an opinion as to the soundness of a horse with Splint. There are many views published with reference to this disease, and various are the questions put to a veterinary surgeon when called upon to report on such cases. It is interesting to learn what our forefathers said about this affection. "Markham's Masterpiece" contains several articles upon it. I am afraid our present practice is so much at variance with that pursued in times gone by, that many of our failures must be attributed to a want of knowledge of the humours and the influence of the moon; that is, if our forefathers were more successful than ourselves. Bracken believed Splint derived its name from the fact of its serving to strengthen the parts as pieces of wood would strengthen a splice. Blaine says: "As the general nature of Splint is that of a conversion of what was before ligament into bone, so it is evident, in this point of view, that a splint can seldom, if ever, be wholly removed; but, from the process of absorption in the machine, in the latter periods of life, being greater than the deposit, so it happens that the *extra deposit* beyond the simple ossific deposit, and which extra deposit is that which constitutes the bulk of the splint, is removed in old horses, or, as grooms express it, 'they wear away.'" A splint placed at the lower end of the cannon bone is still more prejudicial than when situated higher up the leg. Youatt writes thus: "Splints, then, do not necessarily cause unsoundness, and may not lessen in the slightest degree the action or value of the horse. All depends upon their situation." Coming down nearer to our own time, we find a more extensive view is taken of the affection we are discussing. Percivall has half a score of pages upon the subject. He says: "The name of Splint, or Splent, derived from the Italian word *spinella*, a splint, would seem first to have been used to denote the bone in or upon which the disease,

so-called, is seated, and afterwards the disease itself. The eight small bones in our modern nomenclature called metacarpal and metatarsal, in their position along the sides of the cannon bones, or great metacarpal and metatarsal bones, have so much the aspect of splints (the old name for which is *splent*) or splinters off the shaft of the large bones to which they cling, that we can readily imagine how they came to be called splint or splent bones, and as readily understand how the appellation of the bone came to be transferred to the disease. The definition of a splint is simply this : that it is an exostosis, *i.e.*, a callous or osseous tumour, growing upon one, or contiguous to one, of the splint bones. Were the tumour not of such a nature, or, being of such nature, not so situated, we should not call it a splint." He has quoted from Solleysel, who gives five kinds of Splint—viz., "simple ; the pegged or double splint ; the third, which ascendeth to the knee ; the fourth fusee ; the last, osselet." The ordinary site of Splint is about the middle of the leg, rather nearer to the knee than to the fetlock. A splint upon or immediately under the knee-joint is an affair of complication and danger, compared to one in the ordinary situation, and so far we could and ought to make distinctions between splints ; further than this, however, all specification appears groundless and useless. Blaine is of opinion that the lesser the splint the more serious is it to be considered. Here there is an evident clashing of opinions. "How happens it that this useful fibro-cartilage becomes transubstantiated into useless bone ? The immediate or proximate cause we believe to be increased action, amounting in some instances to inflammation, set up in the vessels of the fibro-cartilage, whereby hypertrophy, or, in such an ossific diathesis as the horse species is known to possess, exostosis, is produced. Any violence or injury to bone, it is notorious enough, is, in horses especially, apt to be followed by exostosis, and if the hurt be to a joint, or in the vicinity of one, by ankylosis, partial or complete, as well ; so prone is the economy of the horse to what medical men call ossific inflammation. The cause of Splint, now that its nature has been ascertained, will, on reflection, strike us to consist in anything that may occasion undue or sudden pressure upon the splint bone, whereby the cartilaginous union between it and the cannon bone is stretched or strained, and so has its capillary circulation increased in such a manner or measure that conversion into bone is the result, followed or not by exostosis, as the case may be. Over-action or over-weight at a tender age is the ordinary cause of this. In the anxiety there is to bring young horses into use, in the precocious practice of breaking, and racing, and hunting that exists, we cannot feel surprised at imperfect parts giving way or being reconstructed in a different manner from the original design. Nature is forced beyond her

powers, and, finding that the soft and elastic material placed for a certain wise purpose between the splint and cannon bones insufficient against weight and force, osseous material is substituted for it. Even before breaking or using the colt commences, however, the mischief may be perpetrated. A gallop, a jump, a gambol in the field or yard, may, even in the foal, occasion the throwing out of a splint. Again, a blow or other external injury may produce a splint, though this is comparatively a rare case. To whatsoever cause, however, it be referable, the fact is notorious enough that hardly any horse completes his fifth year without a splint, either latent or demonstrable; for, as we have before remarked, exostosis or tumour is not absolutely necessary to constitute Splint. Splint rarely produces lameness." I have quoted literally from Percivall's "Hippopathology," because the author so ably handled the subject; still, I must be permitted to say I don't agree with all he has written upon it. I don't think Splint has, up to the present, been properly and distinctly understood by horsemen generally. Mr. Percivall's definition of Splint is this: "That it is an exostosis, *i.e.*, a callous or osseous tumour, growing upon one, or contiguous to one, of the splint-bones. Were the tumour not of such a nature, or being of such nature, not so situated, we should not call it a splint."

We learn from this and other observations made by him, as well as some other authors, that a splint must be situated upon, or contiguous to one, of the small metacarpal bones. It will be necessary that we look rather closely into this matter, and endeavour to find out whether we have or have not exhausted the subject. In the first place, it will be well to learn if an exostosis, *not known* to be connected with the small metacarpal bone, should be designated a splint; for, without we settle this question, it will be difficult to deal with it. Reference has been made before to the absorption of the fibro-cartilaginous matter, and deposition of bone between the small and large metacarpi. Suppose the fibro-cartilaginous matter be absorbed, and its *own quantity of bone substituted*, and no more, I would ask if it is likely that many persons will detect Splint during the process of examination as to soundness? I hold a specimen in my hand, taken from a pony twenty-three years old, which consists of the carpal joint of the near leg, *i.e.*, the lower end of the radius, *all* the bones of the carpus with the three metacarpi; the scaphoid has a deposit of bony matter; the small (inner) and large metacarpal are so amalgamated that it would be impossible for any person to distinguish them in the living subject, or to state where the one commenced or the other terminated. The pony was put under treatment some years ago for Splint, and I believe the treatment had successfully banished the growth of bone called Splint. Having seen so much of this kind of thing, I may chal-

lenge the most sensitive hand to discover such a case in the living patient, as that which lies before me. I have been accustomed in practice to term all exostoses Splint, if found in the neighbourhood of the small metacarpal bones, whether on the inner or outer side of the leg. Sometimes I have (when they have been situated nearer to the anterior part of the large bone than to the posterior) named them nodes; which term I believed applicable. Mr. Percivall, however, was of opinion that the term node is *inappropriate*. If the term Splint be confined to the deposit of or substitution of bony matter between the small and large metacarpi, then it becomes necessary to give some other names to those excrescences so frequently met with upon the large bone. For my own part, I see no objection to the term Splint being employed in *all* cases which *may* be found to exist in the immediate neighbourhood of the small metacarpal bone. I don't see that we have need to manufacture difficulties about terms. That veterinary nomenclature is defective no one can doubt, and it may be worth one's while to set about effecting some improvement in that branch of our literature. With reference to the pathology of Splint, I think we have arrived at a satisfactory solution of the disease, so far as this is concerned; but with regard to the *effects* produced by Splint we are not so happy in our opinions. It has been said that Splint seldom produces either lameness or defective action. To this observation I cannot subscribe, as in many cases I have found both Splint and other bony growths about the metacarpal bones produce lameness, and defective action likewise. If we take into consideration the anatomy of the metacarpal bones, and then reflect upon the physiology of the same parts, we shall, I think, ascertain that both lameness and irregular or defective action are often the result of these deposits. I have several morbid specimens in my possession which display unmistakable evidences of inflammation having been centred in the bones themselves. In all these, lameness was, of course, apparent, and so bad in some of them, that I advised the animals be destroyed. I am of opinion that a deposit of bony matter cannot exist between the small and large metacarpi without interfering in *some degree* with the action of the limb. Take, for example, a splint situated midway down the small bone; all the regular courses have passed away, and a portion of the fibro-cartilaginous matter has been substituted by osseous matter, rendering it as firm as if a nail had been passed through it. Now, if the action of the inner small metacarpal be what a mechanic would be led to believe it is on examination—namely, a downward movement, and, perhaps, a little outward also—then a tie or bind midway must, of necessity, produce some change in the action of the limb. If to a board a small splinter of wood were fixed by means of a piece of india-rubber, and a weight placed

upon the upper part of the small splinter, in a precisely similar manner to what is performed upon the bones of the living horse, it will give a fair idea how small a liberty may be taken in nailing the small piece of wood to the larger, and what the result will be. I have every reason to believe that, as the situation of the ossific matter is changed, so will a change take place in the action of that part of the fore-leg of the horse. For many years I have paid especial attention to the action of horses having splints. As these deposits approach towards the carpus, the more they alter the action of the limb, and in some cases they produce an irregular or stilty movement of the whole leg. The shape of the ossific deposit will exercise much influence in producing lameness. I have always found that when these deposits are spiculated they produce much irritation of the periosteum, and will probably terminate in lameness. To the question, Does Splint constitute unsoundness? I will append the decision of Lord Chief Justice Tindal:—"A splint, like a bone spavin, is an excrescence or bony deposit on the leg of a horse, and the danger, in both cases, is the probability of their interfering with his action; the bone spavin by preventing the proper flexion of the joint, and the splint by pressing on the sinews of the leg. Lameness is thus produced by each; by a bone spavin nearly always, by a splint sometimes. It entirely depends on the situation of the bony tumour on the inside of the shank bone whether a splint is to be considered an unsoundness. If it is not in the neighbourhood of any joint, so as to interfere with its action, and if it does not press upon any ligament or tendon, it can be no cause of unsoundness, and although it is very often unsightly, it does not lessen the capabilities and value of the animal." In an action on the warranty of a horse "to be sound in wind and limb *at this time*," the breach of which was lameness, produced by a splint, it was given in evidence that a splint might or might not be the efficient cause of lameness, according to its position, size, and extent; that the splint in this instance was in a very bad situation, as it pressed upon one of the sinews of the leg, and was calculated to produce, when the horse was worked, inflammation of the sinew, and consequent lameness. Lord Chief Justice Tindal said: "It now appears that some splints cause lameness, and others do not, and that the consequences of a splint cannot be apparent at the time, like those of the loss of an eye, or any other blemish or defect visible to a common observer. We, therefore, think that by the terms of this written warranty the parties meant that this was not, at that time, a splint which would be the cause of future lameness, and that the jury have found that it was. We, therefore, think that the warranty was *broken*." I may with truth assert that ninety-nine horses out of every hundred examined by me have something

analogous to Splint situated in the vicinity of the small metacarpal bone, and the question invariably put is the following: "Do you think that splint will come against him?" These are the words generally made use of. Now, how are we to answer the question? By looking closely to the situation of the deposit, with a view to ascertain if it interferes with tendon or ligament, or if it is likely to do so at an early date or at any future time. This is the reply one would most likely receive. This reads very well upon paper, but it does not turn out an easy matter in practice. Many horses are examined, with large deposits of bone adhering to the small bone and extending inside of it; still they are not lame, although the ligament is continually rubbing against it. This can only be accounted for from the fact that all inflammatory action has passed away, and the parts have accommodated themselves to change of structure. Two cases were brought to me this day; one with a large exostosis immediately under the knee of the right leg on the *outer* side, which produced lameness for a considerable time. That patient has been discharged, cured of lameness, and is to be sold. The other case was that of a grey mare having small spiculi of bony matter both on the inner and outer sides of the right leg, about two inches below the knee. She is excessively lame, and has been so for some time. These cases are most troublesome. Is a horse sound with Splint? If we turn to the definition of soundness as laid down by the first lawyers of Great Britain, and which will be found in my first paper, it will there be learned that *sound* means *perfect*; if, therefore, a leg to be sound must be perfect, I think there will be much difficulty in our way in ascertaining the soundness or otherwise of an animal affected with Splint, more especially when we take into account the variety of forms under which these defects present themselves. If it were possible to state the *precise* situation and *extent* of the ossific deposit, we could in that case give a clearer and more definite answer to queries put to us in our examinations of splints. Morbid anatomy enables me to state that it is almost impossible, during the lifetime of the animal, to know the *precise* situation and extent, as well as course, of many splints. In cases of examinations as to soundness *prior* to purchase, these affairs are easily got rid of, should lameness take place subsequently; but if warranties are given in *similar cases*, and the subjects of those warranties fall lame within a reasonable time after being sold, I believe, in nine cases out of ten, a jury will find for the plaintiff.

A PAGE OF CAMELINE PATHOLOGY.

BY ALFRED J. HASLAM, M.R.C.V.S., A.V.D., EGYPT.

SCABIES CAMELI.

TAKING into consideration the importance of land transport, especially where the camel is almost the sole beast of burden, the value of scientific facts concerning this somewhat neglected animal will be at once acknowledged.

The pursuit of science is ever revealing our ignorance ; and, in doing so, so absorbing does the study become, that it is impossible to see, eat, or drink without pondering the " why " and " wherefore " of a most wonderful, yet regular and consistent nature. Finally, it becomes essential to peace of mind to detail that information which others have not had the chance of possessing, and which is for the assistance and ennobling of both man and beast.

Nomenclature.—Camel Itch, " Mange," Scabies, or " Garabb " (Arabic).

Definition.—An inflammatory, eruptive, and parasitic disease of the skin, accompanied by great local irritation and some degree of fever.

Semiology.—The local manifestations of this disease will be treated of in the morbid anatomy.

General uneasiness ; impatient expression on face ; wild appearance of eye, which is constantly moving ; stamping feet on ground ; whisking of tail ; scratching by means of nails ; biting parts within reach ; rubbing against any object in reach, generally against another camel ; rolling and rubbing on ground. At sunset the greatest uneasiness is manifested, due, I presume, to the acarus burrowing deeper to get warmer ; often the camels break loose in their wild discomfort, rushing to the first object they see, and there take revenge on the persistent itch. In fact, Scabies seems about the only disease that excites them, or disturbs that sublimely simple stolid expression of a camel's face. The conclusive sign of Scabies is, however, the presence of the acarus Cameli (Haslam).

Seats of the disease.—The skin is attacked by the acarus in the following order : Groin, sheath, axillæ, inferior surface of abdomen, inferior surface of neck and throat, sides of neck and shoulders ; between the toes, legs, face, sides of chest, and back—in fact, the attack is always where the skin is thinnest.

Occasionally the disease is so violent, that the acari are found in the muscular and subcutaneous tissue of the abdominal walls. I have also found nests of eggs in bloodless, dead muscular tissue. Even Peritonitis has frequently caused death in neglected cases of " Mange," in consequence of the great inflammation in the neighbourhood.

Prognosis.—If uncomplicated by another disease, the prognosis is always favourable.

The date of convalescence depends on the severity of the disease and treatment adopted.

In three or four weeks the severest cases should be convalescent, provided proper treatment can be adopted.

Results of Scabies.—Depreciation in value, usefulness for work impaired, loss of appetite, emaciation, fever, greatly increased thickness of dermis and epidermis (especially the latter; repeatedly have I taken epidermis from groin and lips $1\frac{1}{4}$ inch thick: and, moreover, this condition is not uncommon); also Elephantiasis, especially of legs and axillæ; Erythema, Dermatitis, irritative fever; death by diffuse Myositis, and Peritonitis, Septicæmia and Pyæmia.

Etiology.—Exciting causes, *acarus Cameli* (Haslam).

Predisposing Causes.—General debility; young and aged are much more liable than middle-aged.

Uncleanliness, want of grooming; undrained, hard, damp, clayey soil is very favourable to the progress of the disease.

Over-feeding, and food of a "heating" kind; insufficient exercise.

Contact and in close proximity with other camels; damp and foul atmosphere; temperature of 95° F to 120° F.

Treatment.—The treatment of a thousand or more scabied camels is no easy matter, especially with only native help.

Constant personal supervision is the *only* means by which to obtain your own orders efficiently performed.

All the principles of isolation and sanitation must be carried out.

1. Separate scabied from unscabied by at least 200 yards, and if possible one mile, always placing the former (diseased) so that the prevailing wind may blow upon the latter first.

2. Keep separate the attendants of each group, as far as possible.

3. Place the camels on DRY, SOFT sandy soil. This is of great assistance (camel will immediately thank you, by rolling in the sand); dryness alone will kill the *acarus*, as proved by experience. I beg to differ from those veterinarians who believe that by keeping the camels as near water, and on as damp ground as possible, they assist the cure of Scabies. Moisture is favourable to the development and propagation of this parasite.

The adult parasite is always found among the moistest of the epidermal cells.

Again, frequently have I seen open hock joints of scabied unexercised camels result from being tied with short head-ropes on *hard* ground. The poor beast *must* lie down to scratch himself; he is constantly shifting, and at the inf. post. ext. aspect of the hock, where it rests on the ground, the skin and subcutaneous

structures become worn and softened, pieces of stone get embedded, Synovitis, open joint, irritation, fever, and even death resulting. Imitate nature ; do as nature does, she is the best guide in pathology. Hence, put camels on ground they are adapted for by nature.

4. Separate utensils ; disinfect thoroughly, or destroy all sandals, head-collars, ropes, picket lines, etc., belonging to scabied camels, as soon as convalescent.

5. *Securing*.—In my opinion, each camel ought to be tied four or five yards from his neighbour (of course this is impossible on active service or pressing occasions) ; the head-collar rope ought to be so long as to allow the camel to stand in a *natural* position.

The reasons why camels *are* tied so close and short are, respectively, because the people in charge do not wish to place more picketing line down, and because their head-ropes are too short (which they ought not to be) ; so long as camels touch, the disease will spread from *bad* to moderate cases.

The theory that camels entangle, if tied with head-ropes long enough to enable their head to reach a natural position, means indolence, ignorance, and cruelty ; it is exploded at the sight of more picketing line.

Frequently camps of camels are tied so low that their head can only reach the same height as their elbows ; he tugs, bruises his chin, and soon wants a new collar. The version that the wind blows away much of the food if camels are not huddled up together, means laziness, as a rule. Again, the season of “must”—tying a thousand or more camels together ends in broken legs, bruises, ruptured humps, bites of all descriptions, and surgery to keep a veterinary surgeon busy for three months.

6. It facilitates matters greatly if the scabied camels are divided into groups of different degrees of severity. Different degrees of treatment can be the more effectually carried out.

7. Clip away all hair. Generally we find none, as it soon drops away after the disease is established.

8. Severe cases. If epidermis is much thickened, send camels to the sea-shore ; cause them to lie in two-feet deep water for half an hour. This softens the semi-corneous growth. The camel invariably ducks himself, and he is a fine swimmer should he get out of depth. If not at the sea-coast, use fresh water, as is being done now on the banks of the Nile. This should be done when the day is warm, never in the evening.

9. Severe cases. *Carefully* scrape, *immediately* after the last operation. Bring camel out to shore ; get him to lie down ; secure and turn him on his back. Give the best native a piece of soft sandstone, or nearly smooth stone, to rub off all dandruff and scurf, a man pouring on water meanwhile, others holding the

camel, taking about twelve natives in all. Finally, wash clean with the water. *Avoid* drawing blood and increasing the inflammation by rough scraping and clumsiness. One scraping is always sufficient. Fresh water is quite as good as sea-water for scraping purposes.

10. Dress with sea-water. My experience only extends to Red Sea water as a dressing; but with that daily dressing (*i.e.*, "rubbed in") many cases have been cured. I cannot state if ordinary sea-water would be so effective. The Arabs use a solution of salt when not at the sea-coast; but it is likely that their strict isolation of scabied camels, continued exercise, and change of locality, are the means that prevent their camels ever getting so bad as Government camels. Take care to have the camels walked "in the sun" till thoroughly dry, after this operation.

11. *Dressing*.—Apply some "Mange" dressing twice a week. Any used for horse Scabies will suffice. A reliable sheep dip answers admirably. Stockholm tar, used by Arabs, is a splendid dressing, especially when diluted with fish oil. Carbolic dressings answer well. The most effectual mixture for this Scabies Cameli is, however, the following:—Stockholm tar, lbs. ii.; sulphur, lbs. j.; fish oil, lbs. ix.; carbolic acid (crude), oz. iv. Applied sparingly, but most thoroughly "*rubbed in*," is a splendid dressing, and applied every third day will effect a cure of the severest case in fourteen days. Here let me remark that it is extraordinary how soon Scabies dies away on "dressing," when the scurf is properly removed, the reason being that the breeding establishments of the unwelcome guests are removed.

12. *Exercise*.—Very important. At least, two hours' daily walking exercise, in addition to "watering" and "drawing" forage. They must not pass over ground used for exercising non-scabied camels.

13. *Feeding*.—Cooling diet and short rations; green food, if possible. I have tried the experiment of taking six scabied camels, equal in every respect, as far as possible to judge, and fed three on barley and straw; other three with beans (equal weight to the barley), and found that the barley appeared to increase the local irritation. The barley three were one week behind the others as regards the cure of the Scabies. I am of opinion that beans (equal weights) are more suitable than barley. They must have separate watering troughs, and at some distance—200 yards, at least—from healthy camels.

14. *Grooming*.—Each camel should be groomed daily with curry-comb and brush, the scurf removed. If this were done no "scraping" would be required. If combs are not obtainable, cause the camels to be brushed with brooms. "Half a brush is

better than none." The desert Arab is in advance of English wisdom when he grooms his camels, which he never fails to do.

Pathology and Morbid Anatomy.—Scabies is the most frequent disease of camels. It is very contagious, but varies greatly in severity, according to period of neglect and improper treatment.

The first local appearance is the formation of a papule about the size of a sixpence, then absence of hair. Very rarely do pustules appear, because the pruritus is so intense that *some* means is found to reach or rub the pimple, causing its rupture and exposure of dermis. The pimples never burst of their own accord unless protected from the efforts of the host to disestablish his guest.

These papulæ contain acari, but they are by no means *due* to the development of the eggs to young acari. They are merely an effort of nature to throw off a foreign body—*i.e.*, the burrowing acari producing the uncircumscribed inflammation.

The formation of irregular red patches of clotted blood, exposed dermis, and abraded surfaces result. Biting, scratching, or friction are the only means that will stay this troublesome pruritus to the satisfaction of the camel.

The epidermal cells are meanwhile multiplying, and the great hyperplasia results which is always seen in long-standing cases.

The appearance of the epidermis under an inch object-glass can be compared to nothing better than a translucent sponge as seen by the naked eye. But, in addition to this semi-horn, there is hyperplasia of the dermis, especially connective tissue (demonstrated by microscope and dissection).

Elephantiasis is frequent. Hence here is the reason why the second attack of Scabies is rarely so violent as the first, *viz.*, the skin is thicker, tougher, and harder; there is less juice, and there are fewer softer cells to be had after the parasite has taken the trouble to burrow his way down.

The semi-horn is composed of epidermal cells, united by exuded plasma, and is frequently seen half-inch to one-inch thick. It is to this condition I have referred as necessary to scrape or remove before applying medicine. Often a camel is seen with skin like a rhinoceros hide, so wrinkled, cracked, and hard has it become. Occasionally deep ulcers and Psoriasis are results of these neglected cases. In from seven to ten days after the parasite has been brought in contact with the skin, the pimples have arisen; in seven days more they have been ruptured. From the seventeenth to the twenty-fourth day is seen the scratched and torn appearance. After the twenty-fourth day the visible epidermal accumulation occurs. But it must be remembered that these processes go on all together, on the same camel, with the spread of disease. Scabies *sometimes*, in its earlier stages *only*, is

accompanied by another parasite, *Pediculus Cameli* (Haslam), but oftener this latter parasite is not present. The habitats of the camel louse and camel acarus are quite apart, the former being on the hair and external layer of epidermis. The scabied skin is unfit for the existence of pediculi.

But frequently associated with Scabies is a parasite called the camel tick—*Melophagus Cameli* (Haslam)—very like the sheep tick. I hope, in a future paper, to state the connection between the propagation of Scabies through these ticks and other agents other than the acarus itself.

The Parasite.—Size $\frac{1}{64}$ to $\frac{1}{32}$ of an inch; visible to naked eye, like little white specks, seen in hundreds at the interior surface of a small piece of the epidermal growth. The female is slightly larger than the male.

Form.—A rough, broad oval.

Colours.—Translucent, like the epidermal scales.

Habitat.—Beneath epidermis, but not in dermis, unless in very severe cases indeed, where dermis is very thin; occasionally in the abdominal muscles.

The adult parasite is invariably found among the damp cells and exuded plasma. The young are found in the channels of the epidermis, where the cells are slightly moist; but *never* are they seen in the superficial layers of epidermis.

Food.—Liquor sanguinis and the rete malpighie cells. The older parasites, especially the females, seem to be able to thrive on liq. sanguinis, and even pure blood itself. The younger ones require less; but some moisture is required. Generally, liq. sanguinis is the food. The mouth of the parasite is most admirably adapted for its purpose, consisting of a long, mobile sucker, which is applied to the liquor or soft cells, and by which the juice is extracted and swallowed.

Mode of Life.—The adult acarus is provided with an armour of kitin. In addition, small spikes thrust over the whole of his exterior surface; but on the middle of the back these are much longer and stronger. The smaller spikes, or “hairs,” are arranged in parallel rows, giving an appearance under a half-inch object-glass like the papillæ on palm of human hand to naked eye; also there are *long*, pointed hairs projecting from body and legs. The diagram will explain these. These long, stiff hairs are used as feelers, as the parasite passes along. Those of the fore-legs are especially used. After so feeling, the suckers of the legs are applied to the object, whether it be for food or removal. After a little “tugging,” the object is removed. In this way the tunnels are made. There is no biting arrangement in these parasites. The curved spikes at end of the fore-legs are used for scratching epidermis also, and render very material assistance to the burrowing process.

The whole external structure seems to be adapted for feeling, burrowing, and power to resist pressure.

So far as I can make out (quarter-inch object-glass) there is no organ of vision: this is not needed, however, as his feelers are splendid guides. The tunnels communicate freely, are quite irregular, but end in the rete malpighie. Patient, continued, and repeated observation has been adopted in vain to see an acarus die soon after depositing her eggs—"after laying them, one after another, the first nearest the top of the channel, the last at the bottom," as I have been informed is the habit of the acarus equi. On the contrary, I have repeatedly seen her ladyship, after depositing her eggs, proceed "downstairs" to the soft cells, and resume her nutritious meal of plasma, and even blood itself.

Development.—The eggs are always found together in a nest or pouch of the tunnel.

These nests are always nearer the moist side of the epidermis than the external surface; a certain amount of moistness seems necessary (as dryness stays development, and ultimately the egg perishes). Never are the eggs found in the terminus of the channel. Eight days is about the period before the egg becomes the young parasite. The changes observed with a quarter-inch object-glass are divisions, formation of cellular mass, rugged edges, notching of edges, bulbs, first the fore-legs, then hind.

Generally, there are no more than five or six eggs in each nest.

Why so many scabied camels die.—I. From heart disease. It may astonish veterinarians who have seen camel practice when I state as a fact that nearly all scabied camels not sufficiently exercised (frequently the case at camel depôts), suffer from *mucoid degeneration* of the heart. It is a *most* frequent cause of death. Repeated and constant *post-mortem* examinations have convinced me of the above-mentioned fact. *Ante-mortem* clots, weak, flabby, degenerated hearts, with right auricle and ventricle changed into jelly, need only be looked for to be seen. *Then*, we understand, the loss of appetite, anæmia, exhaustion, asthenia, anasarca, swollen limbs, and the slow death these poor creatures undergo without even a moan.

Natives shirk exercising camels; they must be watched. Exercise is an absolute necessity to health—more to the camel than any animal I know of. He who has toiled for ages is in health strong and wiry, and his muscles far harder than he of whom "the muscles of his brawny arms are as strong as iron bands." *He* cannot stand pampering. I believe I am the first to point out this important fact, discovered by systematic examination of camels, *post-mortem*, on every possible occasion. I hope to have, at some future time, more to say on the subject of heart disease.

2. Irritation, in consequence of the severe inflammation, causes death.

3. Exhaustion, especially aged.

4. Septicæmia and Pyæmia.

5. Rupture of heart, on even moderate exercise, the effect of no exercise. Treat by little and increasing exercise, nutritious food, by no means "bulky" food, however.

6. Peritonitis, due to local inflammation, increased by friction, foreign bodies, etc.

7. Tetanus.

8. Lymphangitis, especially when highly fed ; seen locally only, at first in region of groin and axillæ, where the inflammation is greatest near lymphatic glands.

9. Arteritis and Phlebitis, especially of hind-legs. Arteritis seen in femoral artery, in consequence of acute local inflammation, to some extent ; but I feel satisfied that anæmia and poverty of blood may cause Arteritis, Phlebitis, and Lymphangitis in the camel.

Arabian Pathology.

"It is like Small-pox" (that is, infectious); "it comes from inside. The dressing and rubbing make pimples burst, so it comes out, and drops on the ground" (can't see it); "so me keep moving my gamel!" The natives repeatedly get Scabies from the camels, but the acari do not breed on the human skin. On my own arm I caused the disease to appear ; without dressing, the disease passed away in nine or ten days ; of course, the disease continues if more contact with scabied matter takes place. Horses very rarely get Scabies from camels. The *acarus Cameli* will *not* breed on equine skin. The disease passes away in eight to twelve days. I have tried repeatedly to *establish* camel Scabies on the horse, but never succeeded.

Results of Experiments.

Thorough *dryness*, above 95° F., kills the adult *acarus*. Temp. over 120°, with complete dryness, destroys the egg.

Concentrated solution of salt (NaCl) kills the parasite ; moisture favours development ; Red Sea water kills the parasite. The effectiveness of a dressing depends on the power of destroying the *acarus* and eggs.

["The camel and dromedary are much affected with Scabies, from the presence of the *Sarcoptes dromedarii* (Vallon). It more especially appears in the spring, and shows itself at the flank, sides of the body, and the neck and tail. The animals are continually rubbing themselves and rolling ; they become dull and lose their appetite ; vesicles appear on the skin, and these are soon

succeeded by a layer of scales. . . . The Arabs tar their camels in order to preserve them from or cure them of the disease. The parasite is transmissible to mankind, though it does not appear to propagate in its new home."—"Veterinary Sanitary Science and Police," Vol. II., p. 461. "The Itch, and its best remedy, sulphur, abound from one end of Arabia to the other; but the unskilfulness of the Arabs themselves in the application of the mineral often thwarts its effect, or leaves it only partial. This unseemly affection is common among camels, and from them is frequently communicated to men."—Palgrave's "Eastern and Central Arabia," Vol. II., p. 34.]

Editorial.

THE EXTINCTION OF RABIES.

THE recent alarming increase in the number of cases of Rabies among dogs in London, and the fact that nearly thirty people have died from Hydrophobia within the London area since the commencement of last year, has once more drawn public attention to the existence of this dreadful malady among us, and the serious results that ensue from neglecting the necessary precautionary measures. But, unfortunately, as has so often been the case with similar animal diseases in this country, the measures best adapted for contending with this scourge do not exist, and those which local authorities can put in force when it pleases them are of little value when applied. In London a Police Order has been issued that all dogs out of doors are to wear a muzzle, or be led, and all dogs straying, or unmuzzled, are to be seized. This will effect some good in London, but it will not benefit the districts beyond. Rabid dogs do not respect police boundaries, and when we know that one of the characteristics of the disorder is an uncontrollable impulse to escape from home and restraint, and wander for miles, snapping at and inoculating every living creature they may chance to meet, it will be at once apparent that the country around London is in no way protected, and that the disease may exist, and rabid dogs abound, without let or hindrance, a short distance outside the London police limits. This is the way that, for so many years, we tried to combat destructive diseases in other animals, and of course failed. Rabies is not confined to London, nor to any particular part of England, and if it is to be extinguished, effective measures must be applied in a more or less general and decided manner over a wide extent of country, and for a long period. These measures are well known, and have been insisted upon for adoption frequently since they were published fifteen years ago. It is to be hoped that when Parliament meets, the Government, or some influential member, will introduce a Bill for the total suppression of Rabies. Accepting it as a fact that the maintenance of the disease is solely due to its contagious properties, and that it never originates spontaneously, there is no reason whatever why it should not be

stamped out within a given time. Being extended only by inoculation, it ought to be very much more easily got rid of than Foot-and-mouth Disease, or Cattle Plague. Glanders, like Rabies, never arises spontaneously, and it has been by recognising this fact, and acting upon it, that this equine scourge, which used to decimate the horses of the British army, is now unknown among them except when they come in contact with the glandered horses of civilians outside the barrack walls. In dealing with contagious diseases this country is very torpid and indifferent. It would almost appear as if we thought them indispensable to our welfare.

THE CASTRATION OF CRYPTORCHID HORSES (SPITZ-HENGSTEN).*

BY L. NIELSEN, VETERINARY SURGEON, AARHUS, DENMARK.

I WILL, with your permission, introduce this subject to your readers by saying that the following is based partly upon the Danish literature for the last thirty years, partly from communications received from my colleagues, and principally from personal observation and experience. We have only consulted one foreign source of information, *i.e.*, Hering's short description of the operation in his "Handbuch der Thierarztlichen Operations lehre," third edition, 1879, in which he finishes by saying, "It appears, however, more convenient to use the animal uncastrated."

This conclusion is, however, unsatisfactory to the Danish farmer, because he does not like using stallions; they are too unruly and unmanageable for the farmer to govern. And since cryptorchids are usually more unmanageable than normal stallions, and even savage, they frequently change from one owner to another, each time becoming of less value, and getting into the hands of lower-class men. Many of these animals find their way into the country districts, and are operated upon by the veterinary surgeons of the district.

The castration of cryptorchids in Denmark has long been performed by itinerant castrators, who, from practice, have become expert, and are tolerably successful operators. They frequently insure the animal, in case of death from the operation, by receiving a higher fee when the horse has recovered. However, this guarantee is of little value, because the castrators are poor, and come from another district to operate; they, therefore, usually expect their fees directly the operation is finished, in order that they may return home. It not unfrequently happens that the animal appears to be a stallion after the operation has been performed, although the operation may have been performed conscientiously.

When Professor Stockfleth brought this subject before the Veterinary Society in 1856, only a few of those present had performed the operation, some by the flank, and others through the inguinal canal. During the following year Stockfleth bought a cryptorchid horse, for experiment at the Copenhagen Veterinary School, and had one of the experienced travelling castrators to perform the operation.

It was long after this, however, *viz.*, 1866, before it became the general practice of veterinary surgeons to operate on these animals. In that year Stockfleth published a treatise on the "Anatomical Relations of Cryptorchids." He pointed out that the position of the hidden testicle may be very different,

* Translated from the *Deutsche Zeitschrift für Thiermedizin und Vergleichende Pathologie*, by G. A. Banham, F.R.C.V.S.

so that finding it in the abdominal cavity may be very difficult, and sometimes the whole hand must be passed into the cavity before the gland can be found. The posterior part of the cord has always the same position in all animals, therefore this is easier found. Every veterinary surgeon can see the position of this in the dead subject.

This explanation removed a great difficulty in many men's minds, who feared they would not be able to find the gland. Since this, many practitioners have undertaken the operation; so that at the present time most of such operations are performed by the qualified practitioner (some of whom make it a special study), and the itinerant castrators are fast disappearing.

In order that our readers may follow us more easily, we will just sketch the anatomical relations, as given by Professor Stockfleth in the second volume of his "Handbook of Veterinary Surgery," page 407 (original Danish edition), which is both plain and concise:—

"Near the place where the limb comes in contact with the body, the abdominal wall is pierced by the inguinal canal (*canalis inguinalis*), which lies between the abdominal muscles and the ligament (*ligamentum Poupartii*, *s. inguinalis*) formed by them. This ligament divides into two parts, a limb portion and a pubic portion. The limb portion is the thinnest, and unites with the sheath of the muscles of the limb; the pubic-bone portion, on the other hand, forms a strong tendon, which becomes attached to the anterior border of the pubic bone. The inguinal canal serves for the passage of the testicle and spermatic cord, etc., into the scrotum during foetal life. Both are covered by the general serous tunic (*tunica vaginalis communis*). This canal is not merely a straight hole bored through the abdominal wall, but it is an oblique canal, 8-10 cm. long. The internal opening into the abdominal cavity (*annulus abdominalis*, *s. inguinalis*), or internal abdominal ring, is smaller than the external, and slantingly situated, about 15 cm. from the middle line (*linea alba*). The peritoneum passes through it to the scrotum as a special membrane (*tunica vaginalis propria*), covering, on the one side, the testicle and its appendages, on the other in apposition with the common lining of the scrotum (*tunica vagin. comm.*). The canal is flattened from above to below, filled by loose connective tissue, and passes in a direction from before, backwards, and inwards towards the middle line of the body. The external opening (external abdominal ring) is a cleft about 10-12 cm. long, passing obliquely forwards and outwards in the strong Poupart ligament and the yellow abdominal tissue (*fascia superficialis*). It commences about 4 cm. in front of the border of the pubic bone, and the same distance from the linea alba, but is much nearer the latter than it is to the internal inguinal ring. When the horse stands normally on its legs, the inguinal canal forms an almost closed slit; but when the limb is held backwards and outwards, or when the animal is cast and fixed so that the limb is held from the body, then the inguinal canal is circular-shaped (cylindrical), because the limb portion of the Poupart ligament is drawn outwards and backwards. This is the reason why an inguinal hernia may take place during the operation of castrating a stallion."

In a cryptorchid that Stockfleth bought for *post-mortem* purposes, the left internal inguinal ring was normal, and the spermatic cord passed through it in the usual way outwards. The left vas deferens passed from the internal ring over the round ligament and the ureter, posteriorly over the wall of the bladder, through the portion of peritoneum (Douglas' fold) under the prostate gland, to the urethral canal. The right testicle was in the abdominal cavity, hanging, with its vessels and vas deferens, in a fold of peritoneum about 8 cm. broad, from the superior wall of the abdomen. Inferiorly, it was united to the right inguinal ring by a strong fold of membrane (a kind of gubernaculum). The vas deferens was tolerably long and tortuous, and

had the same form and course as that on the other side. On account of its length and position, it could have easily been drawn through an opening in the inferior wall of the abdomen (operation wound). On the other hand, the vessels were so short, that it would have been difficult to draw out the gland sufficiently to place a clam on them, without fear of rupturing them.

In another cryptorchid which we made a *post-mortem* upon, we found one of the testicles alongside of the small psoas muscle, hanging in a duplicature of peritoneum, which formed a kind of ligament about 10 cm. broad. The vessels and the vas deferens were so long, however, that they could have been easily reached through an opening in the floor of the abdomen, although the peritoneal duplicature must have been torn before the gland could have been obtained. The main point to notice is, that the vas deferens was normally situated.

In some cases we have noticed that the internal inguinal ring is smaller on the side where the testicle remains in the abdominal cavity, than it is on the other, whereas in other cases no difference could be detected.

When is a stallion a cryptorchid, and when is he not?

Hering writes* :—"The testicles often remain in the abdomen or inguinal ring of horses and other animals. Stallions with only one or neither of the testicles visible in the scrotum are termed cryptorchids." This definition is not recognised by the Danish veterinarians. They understand a cryptorchid to be a horse which has one or both testicles situated in the *abdominal cavity*, and whose walls must be broken through in order to reach the gland. When the testicles are found in the inguinal canal, the term "*false cryptorchids*" (*Falshe Spitzhengste*) is used. In these cases it is not necessary to pierce through the wall of the abdomen in order to reach the testicle; they can always be reached and withdrawn (although sometimes with difficulty) through the inguinal canal and external ring; and there is no more danger in operating upon such animals (false "rigs") than upon normal stallions; whereas the castration of true cryptorchids is always a serious operation.

It is often very difficult to decide whether the testicle is situated in the abdomen or the inguinal canal. Since it is most important that a decision should be attained before the operation is undertaken, we may well ask ourselves the following question :—

(b) *Is it possible to diagnose, before commencing to operate, whether a stallion is a cryptorchid or not?*

In true cryptorchids the testicle which has descended into the scrotum is generally large, and hangs low down; whereas, as far as my experience goes, that of false cryptorchids—where the testicle is in the inguinal canal—is of a normal size. When the testicle is situated in the lower part of the inguinal canal or external ring, it can be detected by carefully manipulating the part whilst the horse is standing. If it is situated high up in the canal, near the internal ring, it is not possible to feel it by external manipulation, especially in coarse-bred and fat horses, because of the layers of fat and the several lymph-glands in the neighbourhood. In such cases an examination through the intestine, per rectum, may assist in arriving at a proper diagnosis. If the hind limb of the respective side is pulled slightly away from the body by an assistant, and the hand of the operator allowed to manipulate the external ring, whilst his other hand is at the internal ring, through the bowel, he can be tolerably certain whether a testicle is in the canal or not. We would, however, impress upon our readers not to test the animal in this way when it is cast just before operating; because the hands become so dirty (infected),

* Loc. cit., p. 250.

that it is impossible to properly clean and disinfect them before commencing to operate.

There is no difficulty in detecting the testicle through the intestine ; but there is in finding it. The gland is generally to be found lying in the neighbourhood of the internal inguinal ring, or near the anterior border of the pubis ; but we have never yet met with it in the lumbar region. J. S. Petersen has castrated a large number of cryptorchids, and he says that he has never yet found the hidden testicle in the lumbar region. In two cases a practical assistant has passed his arm into the intestine, found the gland, and pushed it to the operation wound ; so that the operator could secure it with his hand through the inguinal canal. On the other hand, we have, in company with our colleagues, sought in vain for the gland, although a later operation showed that the animal was a true cryptorchid.

It not unfrequently happens that an animal is brought to us having the appearance and manner of a stallion, although there are two scars on the scrotum. In these cases we must be careful to make out whether the animal is a "rig" or not, and, if so, on which side of the body the gland lies—if only one is present—in order to avoid operating on the wrong side.

It may be seen, from the following case, related by C. R. Jensen, how difficult it sometimes is to arrive at a correct diagnosis :—

"In the early part of the summer, a ticklish four-year-old 'rig' was brought. The owner wished it to be castrated, as it was impossible to manage it. According to his report, the animal had the left testicle removed when it was two years old. As the animal had come some distance, and was very poor in condition, I resolved to operate at once. However, after the animal had been cast and fixed, I found scars on both sides of the scrotum, and it was impossible for me to say which testicle had been removed. On neither side could any trace of the spermatic cord be felt, nor could the testicle be found per rectum. The owner's report could not be relied upon with certainty, for I suspected that the right testicle, and not the left, as he said, had been removed, because on that side I could detect a slight thickening, which I believed to be the end of the right cord. Therefore, I allowed the horse to get up again, and bade the owner inquire of the veterinary surgeon who operated on the horse whether he remembered which testicle he removed, and why scars were on both sides. Some few days after, I received an answer from the veterinarian, who said he could not with certainty remember which gland he had removed, but he thought it was the left ; and he, in conjunction with another veterinary surgeon, had failed to obtain the right one. This bothered me, because I did not wish to operate on the wrong side. However, a few days after, H. C. Jensen and myself made another very careful examination, both per rectum and externally, without being able to find the testicle, although we could detect the slight thickening on the right side. We therefore came to the conclusion that we had better operate on the left side, which we did, and found the rudimentary testicle tolerably easily, and the horse soon recovered."

Sometimes the epididymis is found in the inguinal canal, whilst the testicle itself is in the abdominal cavity. Such a case came under my notice several years ago. The subject was a strong five-year-old "rig," in good condition. The left testicle had been removed some years ago. The remaining right one could not be detected by either external or internal manipulation whilst the animal was standing. When cast, however, a small, slight, movable enlargement could be felt. An opening was made, and a rudimentary gland was removed, and the animal soon recovered. After a time, the owner complained that the animal still showed signs of a stallion, which evidence was borne out by a colleague who knew the horse. Therefore it was clear that some mistake or oversight had been made, and that we had removed the

epididymis only, and not the gland itself. I was more impressed with the truth of this after I received the following communication from C. R. Jensen :—

“A poor, half-starved young Russian horse came to this country, and, after three or four months, it began to improve in its condition, when it became unmanageable, which led us to examine it. I found a scar in the centre of the scrotum, but as I could feel the end of the left spermatic cord, it was clear that the left testicle had been removed. When the animal was cast, I could feel a small, movable body, about the size of a walnut, on the right side. At first I thought it was a swollen lymph-gland, but I made up my mind to pass my hand into the abdominal cavity. In doing so, I found this small body was covered by a serous membrane (*tunica vag. propria*), which on the gland itself was of a natural thickness, but above this it was very much thickened, and formed a fine cord, which passed upwards through the inguinal canal to the internal inguinal ring. I cut this through as high up as I could, and then pressed my hand through the small internal ring into the abdominal cavity. Immediately behind the wall of the abdomen I found a tolerably large testicle, which I drew outwards and removed. The horse recovered in about three weeks.”

C. R. Jensen further remarks that he has often found the epididymis from 10—16 cm. from the gland (testicle) itself; and he is quite sure that this position of the epididymis often increases the difficulty of drawing the testicle through the operation wound. Perhaps it is to these cases that the term “short spermatic cord” (*Kurzen Samenstrang*) is applied.

Dr. Eichbaum* made his observation on a foal fourteen days old, which gave a clear idea of the descending of the testicle into the scrotum (*descensus testiculorum*), and at the same time explains the origin of the last-mentioned abnormality. He found one of the foal's testicles in the scrotum, and the gubernaculum almost gone. The other testicle, on the other hand, was situated in the abdominal cavity, near the internal ring, hanging in a duplicature of the peritoneum, which had its origin in the lumbar region, near the M. psoas magnus. Much the same has been observed by Stockfleth and myself. The tail of the epididymis and a portion of the vas deferens were in the inguinal canal, in the already-formed tunica vaginalis communis. In foals having a small internal inguinal ring, the gland might remain in the position just mentioned for an unlimited time, as has been pointed out by C. R. Jensen and myself. It is also self-evident that, under these conditions, it is difficult to draw down the testicle through an opening on the side of the inguinal canal.

From the foregoing, we see that it is sometimes difficult to diagnose whether an animal is a cryptorchid or not. Yet it is of great importance, before the operation of cutting into the abdominal cavity is commenced, to know whether the testicle lies in the cavity or not. I was especially struck with the importance of this from seeing the operation performed by two very expert colleagues, years ago. They carefully examined their subject, both externally and per rectum, and as they could not feel the organ, they concluded it was situated in the abdominal cavity. They made their opening immediately in front of the pubic bone, cutting through skin, muscle, and peritoneum, so that, when the blood ceased, they had a straight and regular cannular wound. By the two forefingers being passed into the abdominal cavity, they soon found the spermatic cord, and this, with the tail of the epididymis, was drawn out; but it was impossible to bring the testicle forward also. Finally, two fingers were passed obliquely from the wound into the inguinal canal, and there the testicle was found. As this was being brought forward, the

* *Revue für Thierheilkunde*, vi. Bd., S. i.

epididymis was drawn back into the abdominal cavity, and only came forward after the testicle itself. The horse recovered. I do not know exactly how Stockfleth operated, but he advises the operator to examine the inguinal canal after he has made his opening through the skin, and before he opens the abdominal wall ; so that if the testicle is in the canal, it may not be overlooked, and the abdominal cavity opened for nothing. If this method is followed, it is evident that the operation wound, instead of being regular and straight through the tissues, as it should be, will be irregular, and the tissues separated from each other, forming pockets for the pus to burrow in and between.

At what age, and in what condition, ought the animal to be in when the operation is performed, and which is the best time of the year to operate ?

All the Danish operators prefer to operate when the animal is between two and four years old. The yearling has not strength enough to stand against such a dangerous operation, and it is more dangerous to the patient. H. C. Jensen has tried to operate on two-year olds, but did not succeed in finding the testicle. The following year, however, the operation was successfully performed. The testicle is usually lodged in the inguinal canal in one and two-year-olds, and the reason why it is not found is because the gland is so small or that the animal is too fat. In such cases it is a good practice to put the animal to work, to reduce its flesh ; also, to remove the already descended testicle, which causes the other to grow and descend into the scrotum quicker than it otherwise would. If, however, the testicle is in the abdominal cavity at this age, it never, as far as I know, gets into the canal or scrotum. J. S. Petersen also says that he has examined many young animals, and found the testicle in the abdominal cavity, and in these cases it never descends, whether the other testicle be removed or not.

On the other hand, some have said they have known cryptorchids which had both testicles down as foals ; and J. S. Petersen knew one case where the testicle descended into the inguinal canal of a foal, and then ascended into the abdominal cavity again.

Although it is not proved by statistics, yet it is generally acknowledged that young horses are easier operated upon than old ones. The abdominal walls of the latter are firmer, and more difficult to bore through than the former ; yet, other things being equal, no other difference is to be observed. The oldest animal I have ever operated upon was nine years old ; yet it was one of the easiest cases I have ever operated upon. Another, operated upon at the same time, was a six-year-old ; this was very dull for a few days, but soon recovered.

Before the operation is performed, it is all important that the patient should be perfectly healthy, and not too fat. The poorer the better, so long as the animal is not weak and its tissues soft. Fat in the inguinal region makes the operation more difficult, inasmuch as the abdominal walls are thicker through, and the fingers cannot be passed into the cavity so easily or so far. A fatty mesentery also makes it more difficult to find the testicle or cord. It is seldom necessary to feed a healthy horse up before the operation, on account of its being too poor. Those in the poorest condition do the best.

Stockfleth has long said that cryptorchids are best operated upon between the months of April and October. At other times of the year the weather is too cold, although animals rarely take cold after the operation. The weather which is most dangerous is cold accompanied by wind. C. R. Jensen says that "good results can only be expected in summer time, partly because at other times the cold winds prevail, and partly because animals are usually more healthy in summer than at other seasons."

My operations have usually fallen in the summer months—viz., between April and September—therefore I have had no experience of the effects of cold on such patients, but I believe that summer is the best season to operate in, upon the ground that C. R. Jensen mentions. Other colleagues only operate during summer, but J. S. Petersen often operates in winter, and says that cold need not be feared.

(*To be continued.*)

AIR AND ITS RELATIONS TO HEALTH AND DISEASE.*

BY FRED SMITH, M.R.C.V.S., ARMY VETERINARY SURGEON.

COMPOSITION OF THE ATMOSPHERE.

THE air may, generally speaking, be stated to be a mixture of one-fifth oxygen and four-fifths nitrogen, in one hundred parts. The exact composition of pure air has been variously stated, but the following may be accepted on the authority of Dr. Angus Smith :—

Nitrogen.....	78·98
Oxygen	20·99
Carbonic Acid.....	0·03
	<hr/>
	100·00

In addition to these, air is found to contain a certain amount of watery vapour, which varies with the temperature, traces of ammonia, and a variable quantity of ozone, organic matter, and mineral substances.

Oxygen.—A pure air will contain 20·99 per cent., an average air 20·96 per cent., whilst very bad air begins at 20·6 per cent. Under contaminating influences, the oxygen diminishes ; the air from cow-houses and stables, taken after the buildings had been open in the morning, gave from 20·70 per cent. to 20·82 per cent. (Angus Smith). A close stable in the Ecole Militaire gave 20·39 per cent., and the same stable, ventilated by casements, 20·71 per cent. (Leblanc).

Ozone is only another form of oxygen ; it exists in very minute quantities, and is supposed to be generated by electrical conditions of the atmosphere and by aromatic plants and flowers (Montegazza). It is seldom found in the air of inhabited rooms (Wolffhügel), is most abundant in open fields and places of great atmospheric moisture (Ebermeyer). Ozone has an exceedingly irritating effect on the respiratory passages, eyes and nose, and an attempt has been made to connect outbreaks of Influenza with its presence in the air. Owing to its great oxidising properties much influence has been attributed to it in checking epidemics and epizootics, but evidence is wanting.

Carbonic Acid.—This is a constituent of the atmosphere, and as such is principally derived from the ground air. Its normal proportion is about ·04 per cent. Pettenkofer gives ·05 per cent. for the air of Munich. My own analyses show that the amount of CO₂ in the air varies considerably, not only from day to day, but from hour to hour ; on succeeding days I found the following quantities : ·062, ·068, ·047, ·053, and ·032 per cent. Air taken from the same place within a few minutes of each other, yielded ·041, ·038, and ·032 per cent. The air close to the ground contains more CO₂ than that some feet above it. I have found ·065 per cent. on the ground, and ·053 per cent. seven feet above it.

In spite of the enormous amount of CO₂ passed daily into the atmosphere (computed by Dr. de Chaumont for London alone to be 822,000,000 cubic feet daily, and by Dr. Smith to be, for Manchester, 15,066 tons daily), yet,

* A paper read before the Central Veterinary Medical Society.

owing to the process of diffusion, the amounts in the air of big towns is very little larger than in that of country places. Variations in the CO_2 of the air occur under certain circumstances. Mene found that it is lowest in winter, increases during the spring, falls again during summer, rises during the autumn, and obtains its maximum in October. On land it is greater by night than by day; the reverse holds at sea. It increases with snow, but diminishes, as might be expected, with rain. The greatest variation in quantity is attributed by Fodor to the ground air. An increase in the amount of CO_2 in the air of buildings is indicative of a reduction of oxygen, *and an increase of organic matter*. The amount of CO_2 present is therefore used as an index of the purity of the air, as we shall have later to show.

Nitrogen is incapable of sustaining life, and its function in the air is to dilute the oxygen. During electrical conditions of the atmosphere, a portion may be converted into nitric acid, a substance often found in rain-water. There are no changes known to occur in it.

Watery Vapour.—The amount of this is constantly varying; its changes have no relation to the different proportions of gases which may be present—it is quite independent of them. The variations in moisture are due to the temperature; more vapour is contained in air when the temperature is high than when it is low.

IMPURITIES IN THE AIR.

It is not surprising to find that the impurities found in the air are numerous, and derived from many sources. The importance of these impurities to us is very great, when we consider that, in whatever form they exist, they obtain a direct entry into the animal's body by means of the respiratory passage. Absorption from the mucous membrane of the lungs is particularly rapid, especially from substances in solution. The administration of medicines by the trachea, which has lately been strongly advocated, is based on this knowledge of bronchial absorption. Certain provisions exist in nature to prevent an accumulation of the enormous amount of impurities poured into the air. The chief of them is the well-known law of diffusion, whereby rapid dilution of the particles occurs. The vegetable kingdom plays an important part, by assimilating as food certain impurities in the air and replacing them, as in the case of oxygen, by material of life-giving properties; the natural oxygen of the air assists in the purifying process by destroying organic compounds and breaking them up into simpler bodies. The elements perform their share in the process of disintegration and repair; the air is washed by means of rain, and impurities carried down by this means to the earth, where they are assimilated by plants, and thus destroyed. All these provisions of nature tend to keep the air in that condition of healthy balance which is so essential to animal life.

The lungs of a horse will contain nearly one and a half cubic feet of air, and at each inspiration 130 cubic inches are drawn through the trachea, and the surface of the lungs to which this amount of air is exposed is calculated to be equal to 289 square feet. Air, then, containing impurities, particularly gaseous, is exposed to an absorbent within the body equal to five and a half times the surface of the skin.

Air is rendered impure by the products of respiration, and the decomposition of excreta; by the influence of large manufacturing towns and thickly populated cities; the air becoming vitiated by the products of combustion and the gases of trades, and by disease poisons given off from the bodies of sick men and animals. For convenience of description, therefore, the impurities of air are divided into organic, inorganic, and gaseous.

Organic impurities, in small proportions, always exist in the air of places occupied by animals; and in order to distinguish between the amounts and

their effects, they have been divided into neutral, putrid, and organised. Such a division is quite an arbitrary one, and may be open to objection; it is, however, a convenient arrangement for purposes of description.

Organic impurities exist in the form of solid particles, accompanied in many cases by gases which are given off from them. These particles, such as bacteria, vibriones, spores of fungi, are only of microscopic dimensions; others, such as vegetable fibre, epithelial cells, etc., are much larger. The organic matter in the air can be collected; that from the human breath has been condensed and examined. Ehrenberg has discovered 200 forms of organisms in air thus collected.

We know very little about these living particles of matter found in the air; they are largely met with in prisons, hospitals, houses, and stables, wherever the air is impure, and in a lesser degree they exist everywhere. We can filter them from the air, and can also destroy them by the action of chemical agents. On this process of filtration and disinfection of organic particles is founded the basis of antiseptic surgery.

Amongst these organised particles are also others, which form a distinctive group. They are characterised as being the *materies morbi*, or disease-producing bacteria; such, for instance, are the poisons of Pleuro-pneumonia, Tuberculosis, Sheep-pox, Cattle Plague, Influenza, and, probably, Anthrax and Glanders. That particles of disease-producing matter can be conveyed by the air is well known, and the following experiment, made by Kuchenmeister is quite conclusive: A sheep was made to breathe, during one hour, air which was made to traverse a shirt worn by a Small-pox patient for twelve hours; in five days the animal was affected with Variola.*

Epithelial scales and pus cells have been found in the air of hospitals, and in those devoted to the treatment of skin diseases actual disease-producing fungi have been found. The air of towns contains organic matter in a state of fine division; vegetable fibre derived from manure is frequent in the air of streets; pollen from flowers, feathers, epidermis, hairs, scales, fungi, are commonly found.

Solid bodies in the air, both of organic and inorganic origin, have been observed for years. In examinations made by Dr. de Chaumont, epithelium, hair, and various fibres, sand, soot, and crystalline substances, sporangia of fungi, and monads were found. In the accident ward of St. Mary's Hospital he found pus cells in the air near some beds where repeated cases of Erysipelas had occurred. Dr. Veale found at Netley, under similar conditions, the air loaded with fungi. I have found in the air of stables, hairs, epithelial cells, vegetable fibre, sand, spores of fungi, and in one case an acarus. Mr. Crookes and Dr. A. Smith both found large quantities of organic solid matter in the air surrounding animals affected with Cattle Plague. In passing air from cow-houses through a solution of permanganate of potassium, he observed that the appearance produced in the water could not be caused by pure air, unless from fifty to one hundred times the amount was used. With regard to the organic particles found in sheds where diseased animals were kept, he says: "I came to the conclusion that the air of cow-houses and stables is to be recognised as containing more particles than the air of the street in which my laboratory is, and of the room in which I sit. There is found in reality a considerable amount of *débris*, with hairs or fine fibres." Similar indications were found in a cow-house with healthy cows, so that Dr. Smith did not pretend to have discovered the poison of Cattle Plague; but that when particles exist in the air surrounding diseased animals, it is only rational to believe that in the case of infectious diseases they may be the means of conveying the specific poison.

Various forms of bacteria have been detected in the air; putrefactive

* "Veterinary Sanitary Science and Police," G. Fleming, LL.D., F.R.C.V.S.

bacteria are always present ; those of Anthrax, Tuberculosis, and Glanders are probably present under certain conditions, particularly that of Tuberculosis. Anthrax spores present in the air of rooms where wool-sorting is carried out, is well known to produce the disease by inhalation. Slight air currents probably prevent floating bacteria from settling down ; the condensed watery vapour which surrounds them tends to maintain their buoyancy ; friction also retards their fall (Ziegler).*

Wernich has shown that air currents may sweep off bacteria from moist fungus masses adhering to the surface of solid bodies.† Fodor, according to Parkes, found at Buda Pesth bacteria in 522 out of 646 observations. Bacteria and fungi seemed to alternate in seasons and years ; the former were more common in spring, the latter in autumn. Klebs has collected the bacillus of malaria from the air over the Italian marshes.

The organic matter found in air vitiated by respiration and transpiration is made up of cast-off epithelium from the mouth, air passages, and skin ; organic vapours from the lungs and skin whose constitution is improperly known ; fæces in fine division, and vapours derived from the decomposition of materials from the intestinal and urinary passages. This organic matter is accompanied by carbonic acid gas and watery vapour. Regarding the latter, the cutaneous and pulmonary transpiration from a horse, whilst in the stable, is equal to about two gallons of water in twenty-four hours ; for the ox it is about one and a quarter gallons. The vapour from the skin contains organic matter and CO_2 , the former exists in larger amounts than in that of man.

It is this organic matter found in the air of buildings which obtains such an important place in the hygiene of air. We have previously mentioned that it has been condensed and collected from the air ; it may also be drawn through distilled water by means of an aspirator, and its presence detected on analysis. Angus Smith found that condensed from the air to be a thick oily liquid, smelling of perspiration and capable of rapid decomposition. This air was taken from a crowded room. If organic matter derived from the skin and lungs of human beings possesses such objectionable properties, what must the organic matter from the habitations of animals possess, when we consider that not only are the skin and lungs acting, but that we have deposited in the place where they live the discharges from the bowels and kidneys ?

When organic matter is produced, it rapidly adheres to the walls, woodwork, etc., and there, parting with its water, it becomes fixed, forming a greasy coating.

This is the reason why the peculiar penetrating odour of organic matter, in badly ventilated stables, is so difficult to remove, even with free perflation of air ; it hangs to woodwork, walls, and ceilings, and is readily experienced on entering a building of this description, or the decks of transport ships.

This organic substance, owing to the moisture in the air, is constantly undergoing change, giving out carbonic acid, ammonia, and sulphuretted hydrogen—the blackening of the paint of such habitations is due to the latter gas. From observations made by Dr. de Chaumont and others, it has been shown that *the organic matter in the air of buildings is in proportion to the CO_2 of respiration*. This is a most important point, for it affords us a ready index to the purity of the air by determining the amount of CO_2 present in it. It must be distinctly repeated, as we shall have later on again to note, that it is not the actual presence of a large amount of CO_2 in air which is to be dreaded, but the certain indication which this affords of the large amount of organic matter which is present. This brings us to a consideration of the CO_2 present in the air as the result of respiration.

* "Pathological Anatomy."

† *Idem*.

A horse in a state of quiescence gives off 7·50 cubic feet of CO₂ every hour from the lungs, and a certain though undetermined proportion is also given off by the skin ; but taking that from the lungs alone, it would amount to 180 cubic feet in twenty-four hours ; or, if converted into carbon, would give us a solid block weighing six pounds.

Muscular exertion doubles the amount of CO₂ expired, but if the work be carried to an exhausting degree, the amount is lessened. A high temperature reduces the quantity expired, a low temperature increases it by about one-fifth. During abstinence the amount excreted is lessened. Disease has an important effect on the elimination of CO₂ ; in Tetanus it is considerably increased, in Hydrothorax and Glanders it is reduced in amount. Taking an animal in health, we find that 100 parts of expired air contains 13 instead of 21 parts of oxygen, and 4 or 5 per cent. instead of ·03 or ·04 per cent. of carbonic acid ; and in addition to these a variable amount of watery vapour containing organic matter.

It is evident that if the CO₂ in the air of buildings forms an index of the amount of organic matter present, that our endeavours should be to keep that amount of CO₂ as low as possible, and as near that present in the external air as can be. The CO₂ in pure air is about ·04 per cent. The amount which experience has fixed over and above this, to allow of organic matter, is ·02 per cent. ; therefore, the total of ·06 per cent. is regarded as the limit of organic impurity in buildings.

We have hitherto had but little information given as to the amount of CO₂ in stables. I can only find a few published analyses—one by Leblanc, who found, in a stable at the Ecole Militaire, ·70 per cent. ; two by Dr. de Chaumont, who found ·10 per cent. and ·059 per cent. ; two by Mäcker, who found in a stable at Gottingen ·85 per cent. and 1·70 per cent. ; and two by Dr. Angus Smith, who found ·083 and ·087 per cent.

CARBONIC ACID IN THE AIR OF STABLES.

	Per 1,000 Volumes.
Pure stable air.....	·6000
Ecole Militaire	7·0000
Hilsea.....	1·0530
„	·5930
Gottingen	8·5000
„	17·0700
Manchester	·8700

ANALYSES BY MYSELF.

Mean of 14 analyses	1·5700
„ 14 „	1·3200
„ 25 „	2·1000
Largest amount found	2·6585
Least „ „	·5716

Three of these show great impurity, particularly the Gottingen stable.

(To be continued.)

THE FELLOWSHIP DEGREE OF THE ROYAL COLLEGE OF VETERINARY SURGEONS.

AT a Meeting of the Examiners for the Fellowship Degree, held on 25th November, the following members passed the examination :—F. Raymond, A.V.D. ; W. Sewell, London ; J. Atkinson, London ; J. T. Thompson, Sheffield ; G. H. R. Wilkin, Lambourne ; Albert Wheatley, Reading ; J. P. S. Walker, Oxford ; Hugh Kidd, Hungerford ; H. R. Perrins, Worcester.

Proceedings of Veterinary Medical Societies, &c.**EDINBURGH ROYAL VETERINARY COLLEGE.**

ON October 28th, the sixty-second winter session of the Royal (Dick's) Veterinary College, Clyde Street, was opened with an address by Dr. Aitken, Professor of Chemistry.

LORD PROVOST SIR GEORGE HARRISON, who presided, said he was pleased that one of the last duties of his office was to be with the students of the Dick College, in the success of which he had taken great interest during the whole period he had occupied the civic chair. The trustees had the interests of the institution very much at heart, and while they had been able to improve it to some extent during the year, he hoped that, with the means likely to be available, the buildings would be entirely remodelled by next session.

DR. AITKEN, in the course of an interesting address, referred to the increasing number of students who attended the Dick College, which was the oldest veterinary school in the kingdom, as an evidence that it was maintaining its reputation. As regarded examinations, he said that the veterinary examinations they had to pass had less claim to be considered perfect than any others he was acquainted with. He thought that the difficulty might be met by providing two examiners instead of one, as he did not consider that any examiner for degrees, however well qualified, should have the responsibility thrown upon him of passing or rejecting a candidate. In referring to pleuropneumonia, Dr. Aitken said they all knew the rough and ready stamping-out process; but he hoped, with the spread of veterinary science, the time was near when something more scientific than the wholesale slaughter and burial of healthy herds might be discovered to rid the country of disease. As to the depression in agriculture, he said that it would be folly to expect that any fiscal obstructive enactments would do anything to protect agriculture from the operation of those causes which were the outcome of scientific progress. They saw the nations of the Continent and the States of America making agricultural education a national concern, and if they were to hold their own among the nations of the world they must follow that example. This would do more good than those Utopian schemes of agrarian reform which had for their object the multiplication of miserable crofts—little patches of land upon which an unlimited number of peasants, with neither capital nor the resources of modern invention, spent their energies in the vain attempt to compete with science and capital, and so multiplied a race of agricultural paupers.

PRINCIPAL WALLEY, in addressing the students, mentioned as an instance of the present faulty system of examination, that one of the students from the Dick College, who passed without honours or distinction in the local examination, headed the list in the competition for the Fitzwygram prize of £50, which was open to the whole country.

BAILIE CRANSTON, who had taken the chair in consequence of the Lord Provost having an engagement elsewhere, said he was happy to inform those who would return to the College next year, that they were going to take down the present buildings, and that an offer for an additional piece of ground would likely be successful. He hoped that by next year the students would have every accommodation, appliance, and comfort. This object, Bailie Cranston stated, was to be accomplished by the sale of ground in Burntisland, belonging to the College.

The usual votes of thanks brought the proceedings to a close.

ROYAL VETERINARY COLLEGE MEDICAL SOCIETY.

THE third annual general meeting of the Royal Veterinary College Medical Society was held in the theatre of the College on Monday, 12th October, 1885.

Present : Twenty-eight student members, Mr. G. W. Baker, M.R.C.V.S., twenty-two visitors, the President, and Secretary.

The PRESIDENT (Professor Robertson) occupied the chair. After the confirmation of the minutes of the last meeting, he read his report for the past year. He said the retrospect was of an agreeable character. Much good work had been performed, and this in a manner which was attractive to the members, as shown by the fact that there was, at the nineteen ordinary meetings, an average attendance of thirty. Sixteen essays have been read, discussed, and defended, and twenty *post mortem* specimens introduced and dilated upon. The essays have been of a type indicating considerable care and thought in preparation, and have elicited a large amount of useful discussion. During the whole session the utmost unanimity had prevailed, the finances are in a prosperous condition, and altogether he thought there was cause for congratulation.

Mr. H. Almond, M.R.C.V.S., was requested to adjudicate on the merits of the essays and to carry out the *viva voce* examination, and Professor Shore the anatomical specimens. The awards of these gentlemen are as follow :—

For best essay read at general meeting of the Society : the silver medal to Mr. Geo. Edward King ; second best, the bronze medal to Mr. M. G. Byerley.

For best essay on “Pink Eye” : the silver medal to Mr. A. Cawdle ; second best, the bronze medal to Mr. W. E. Cawdle.

For best dissection of hind limb of the horse : the silver medal to Mr. P. G. Bond.

Best essay on the sodium and potassium salts used in veterinary medicine : the silver medal to Mr. T. E. Barcham.

Special prize (silver medal) for a general examination, written and *viva voce*, on the subjects of the College curriculum, to Mr. Herbert Buckingham.

Fellowship certificates were granted to Mr. John Buscombe, M.R.C.V.S., Mr. James Farmer, Mr. W. E. Cawdle, Mr. A. Cawdle, Mr. H. Buckingham, Mr. J. Blakeway, Mr. Fitz-Eassie, Mr. W. R. Walker, Mr. G. King, Dr. W. E. Folsetter, Mr. M. G. Byerley, Dr. Austin Peters, B.Sc., Mr. Crundall.

The PRESIDENT congratulated the Society on the successful session past, and in course of his inaugural address mentioned the fact that a new relationship was established between the governing body of the College and the Society. The Governors, at the request of the Society through the President, had arranged to provide a reading-room and periodicals for the use of the students. In order to meet the expense of this, a fee of one guinea would be demanded from each student on joining the College. Such payment would admit to the reading-room, and would entitle the payer to election to membership of the Society by ballot, without payment of further fee to the Society.

Nineteen gentlemen were proposed for membership. The following officers were elected :—

Vice-presidents : Messrs. Carter, McCormack, West, Blancard, Lewis, and Bray.

Committee : Messrs. Carter, McCormack, West, Bray, Lewis, Blancard, Pickwell, Peele, Chambers, Langley, Jones, and J. H. Oliver.

Auditors : Messrs. E. A. West and Oliver.

Votes of thanks to the President, Secretary, and Assistant-Secretary terminated the meeting.

BORDER COUNTIES VETERINARY MEDICAL SOCIETY.

THE sixth meeting of this Society was held at the Great Central Hotel, Carlisle, on October 23rd. Mr. Roberts, Kendal, in the chair.

MR. DONALD nominated Mr. Thompson to be President, and the following gentlemen Vice-Presidents for the ensuing year:—Mr. Tallentire, Skelton; Mr. Harrison, Warcop; Mr. Little, Abbey Town; and Mr. Watson, Ireby.

The CHAIRMAN proposed that the Secretary (Mr. Donald), and Treasurer (Mr. Thompson) be re-elected, and he accordingly nominated those gentlemen.

He also read a letter from Mr. Mulvey, with reference to the proceedings at the meeting of the Council appointed to inquire into the operation of Clause 9, in which he stated that he thought it very probable that a new charter would have to be obtained.

The CHAIRMAN called upon the President for the year (Mr. Jos. Carlisle) to read his paper.

MR. CARLISLE read the following paper on—

KUMRI, OR GENERAL PARALYSIS IN THE HORSE.

Gentlemen,—As you have done me the great honour of electing me President of the Border Counties Veterinary Medical Association for two years in succession, and as my term of office is fast drawing to a close, I have thought it my duty, as a slight recognition of the confidence you have reposed in me, and of the great kindness you have always shown to me during the time I have occupied this chair, to lay before you a few observations upon a disease which has always been of the greatest interest to members of the profession to which we here present have the honour to belong. I repeat that it has been of the “greatest interest,” for the simple reason that it has been, and is now, to some extent, surrounded with a certain degree of doubt and mystery. The disease I refer to, and which I have chosen as the subject for the few remarks I now purpose offering to you, is one which I have taken the liberty to describe and define as “Dental Paralysis,” or, more correctly speaking, “Paralysis Consequent upon Protracted Dentition in the Horse.” It has, I am inclined to believe, and as I venture to remark, already been treated of and commented upon by contributors to the veterinary journals, under different names to that which I have ventured to bestow upon it; it may be under the name of “Kumri,” or “Kummirree,” “Sunstroke,” or “Grass Staggers,” or simply as “Paralysis in the Horse.” After a long professional experience of nearly fifty years, and the close and lengthened study which I have given to the disease, I think, gentlemen, I have some warrant for asking you to extend to me your forbearance, whilst I place before you very shortly the reasons which have induced me to arrive at the conclusions I have come to concerning it. I am well aware that I am advancing theories which, I possibly shall be told, are based to some extent upon mere surmise and suspicion. I repeat that such may be the case, but I can assure you, gentlemen, that my conclusions are founded as well upon the long professional experience I have already had, as upon the careful attention and study which I have always given to the disease; and with these preliminary remarks, I will now state to you very shortly, though I am afraid it may be somewhat imperfectly, the grounds and reasons which I have to advance in support of my humble opinion, that there is such a disease or affection of the horse as “Dental Paralysis, or Paralysis Consequent upon Protracted Dentition.”

The disease, generally speaking, is known and distinguished by the loss of power of voluntary motion which the paralytic attack brings about, and it affects, as you are all aware, various parts of the body, and each part affected

indicates the name by which the affection is known. It may be Paralysis—partial or complete—of some particular muscle or muscles ; as in Paralysis Hemiplegia, when the affection is confined to one side only of the body, or in Paralysis Paraplegia, involving one half of the body taken transversely.

Now, gentlemen, you are all well acquainted with the special peculiarities which the disease, in its many forms, presents ; and, therefore, it is not my intention to treat of the varied forms with which we meet it in the horse and other animals. To do so would be a very arduous undertaking indeed, and I will therefore content myself with offering a few remarks as to the cause, the seat, and the symptoms and treatment of the disease, in the form I am treating of it this evening, so far as I have been able to arrive at an opinion thereon.

The disease, I am led to believe, has its origin in the brain and nervous system, and the whole of the latter becoming involved, to a certain extent, general Paralysis is the result, as evidenced by the peculiar action of the whole muscular system. This action, I believe, is brought about by, and is the natural result of, the constant and excessive pain set up by the protracted process of dentition. The protraction of the dentition is attributable to, and caused by, the excess of blood determined to the head. The blood vessels become congested to a great extent, and continue in this condition for a long period, and thereby cause morbid disease and altered function of the brain, and particularly of the medulla oblongata and the whole nervous system. Generally speaking, the disease is most prevalent in the summer months, and especially at the time of the year when the days are hot, and cold east winds are blowing during the night. During the months of July and August, as many of you will no doubt have observed, the young horses are constantly nipping the seed from off the top of the rye grass, and this is said, by some writers, to be the cause of the affection known as “Kumri.” The seed of the rye grass contains, as is alleged, some narcotic principles which are said to exercise a certain influence, and bring about an effect producing derangement of the digestive organs, and subsequently interfering with the flow of nervous power from the brain to the organs of motion—Paralysis being the result ; and it is this condition which, combined with the depending state of the head when the animal is feeding from the ground, excites the predisposing cause, namely, protracted dentition. The theory that Paralysis is to be attributed to the animal feeding upon the seed of the rye grass, appears to me to be wholly inconsistent with the fact that cases of Paralysis frequently occur when the animal had not been feeding on rye grass at all, as, to my certain knowledge, the disease has frequently been met with when the horse has never been out of the straw yard or the stable. The disease, as I am now treating of it, differs essentially from any other kind of Paralysis, inasmuch as the whole muscular system is involved. There is also another fact, gentlemen, which bears out the opinion I have advanced as to the cause of this particular disease, and that is, the disease is never met with in an aged horse. Between the age of eighteen months and four years is the period during which it generally presents itself, and it is during this same period that dental fever establishes itself, and produces morbid disease in the brain and nervous system. Within the alveolar cavities, where the teeth are formed, a very complicated piece of structural and anatomical arrangement of parts is carried on in the formation of that very necessary weapon—the tooth ; and this process, as is well known, is an extremely painful one when the vascular and nervous tissue of the tooth is in any way tampered with.

The symptoms of the disease are of a somewhat commonplace character, and easily distinguished. The first thing that draws one's attention to the fact that something is amiss with the animal, is his peculiar gait. He has a tendency, when suddenly approached, to make a rush forward, in a manner

which conveys to one the idea that he is unable to control his own movements, and has lost command over his own body. He walks with a staggering gait, and on making inquiry from the owner, it will generally be found that some slight symptoms of the disease had been observed for some time. As time goes on the symptoms become more pronounced and alarming. The animal keeps lifting his fore legs high, and stepping over in a singular way. His action behind is equally unguarded. He walks with his legs wide apart, and throws up his hind quarters at every step he takes with a sudden jerk. His head and neck generally assume a straight line, and when the head is moved laterally on the atlas and dentata, it seems to give pain, and the eye at the time is fixed in its orbit. The conjunctiva is very red, and the blood vessels are highly injected. The temporal artery is full and bounding, and the temperature high. There is weeping from the inner canthus, and the bowels are constipated. He is very unwilling to have his mouth and nose handled, which renders it difficult to administer medicine.

Now, gentlemen, I have placed before you two theories as to the cause of "Kumri," namely, the rye grass theory, and the Dental Fever theory, consequent upon disturbed and protracted process of dentition. The last-named theory is one which I claim, and, with some confidence, contend to be the true and correct one. I am, however, bound to admit that I have not yet been able to satisfy myself strongly on all points, as a satisfactory connecting medium is still wanting. The missing link, which is to make the chain perfect, yet remains to be found. In one particular, however, I am perfectly satisfied in my own mind, and that is, that disturbed and protracted dentition plays a very important part as a predisposing agency in producing the disease. I sincerely hope that some enterprising and observant member of our profession will be able before long to supply the missing link—between the medulla oblongata and the teeth bed—which is now wanting to clear up a point involved in doubt and mystery.

As regards the treatment which I have hitherto adopted, in trying to cope with the disease, I may say that I always resort to bleeding; and, if possible, I bleed from the temporal artery, preferring, as I do, arterial section to venesection. After bleeding, I have the animal put into slings, in order that he may rest comfortably. I then administer an active purgative, and introduce a seton behind each ear, over the region of the medulla oblongata. The setons I dress with nux vomica ointment. After the action of the cathartic, I commence to give aloes and nux vomica in drachm doses, combined with three drachms of nitrate of potass daily, for about a week. I still continue to dress the setons with nux vomica ointment, and administer occasional doses of Ferri: Sulp: and calomel with nux vomica. In the course of a fortnight or so, I remove the setons and apply a blister from behind the ears downwards. I have always found very satisfactory results follow the nux vomica treatment, but I find the curative treatment something like the disease itself—very protracted; as it is generally three to six months, and in some cases twelve months, before the symptoms disappear.

As death rarely ensues from an attack of the disease, I have only had an opportunity of making two or three *post-mortem* examinations, and I will only refer to the last which I made. About two years ago, I attended a horse which had been affected with "Kumri" for some time. I had him put into slings, but in spite of my treatment he continued to get worse, and one morning I found him dead in the slings. The owner of the animal wished me to make a *post-mortem* examination, and I did so. I made a very careful and minute examination. I found the internal viscera in a normal state. The lungs were congested with dark blood, which I attributed to the pressure from the slings. I made a section of the cranium, and found the brain—

particularly the medulla oblongata—in a very soft and pulpy condition, almost floating in water of a light brown colour. The spinal cord presented very nearly the same appearance throughout, excepting that there was little or no water. I also made a section of the alveolar cavity, which presented a most singular appearance. The first and second molar tooth, on both sides of the upper jaw, were detached and surrounded with thick white pus. The whole contents of the cavity presented a very abnormal and unhealthy appearance, and emitted a very disagreeable smell.

I have now, gentlemen, completed the few remarks which I intended offering to you upon the mysterious disease known as “Kumri,” but I cannot sit down without thanking you for the kind and very close attention which you have given to me. I sincerely trust that one result of this meeting will be that each one, and all of us, will go away from this room with the strong determination to do all that lies in our power, and use our best endeavours, to try and find the missing link to which I have made allusion. The mysteries which still surround the disease will, I believe, remain hidden for a short time only, and will be dispelled by the light which a noble profession will before long cast upon it.

At the end the CHAIRMAN invited discussion.

Mr. HARRISON (Warcop) thought that Mr. Carlisle had too hastily arrived at the conclusions contained in his paper, to the effect that the disease was new, and not well-known. He had made one *post-mortem* examination, which seemed to have had a greater effect on Mr. Carlisle’s mind than it warranted. Kumri was simply a variation of the common ailment known as Stomach Stagers.

Mr. CARLISLE was of opinion that Mr. Harrison had mistaken the disease. He had been speaking of the disease brought about by Indigestion.

Mr. PEARS (Langholm) suggested that similar symptoms of dental disturbance as described in Mr. Carlisle’s paper produced Indigestion, which acted on the brain, and thus caused the illness. The same principle extended to young children. There was also a common ailment of this nature amongst sheep in his district.

Mr. TALLENTIRE endorsed Mr. Carlisle’s views on Paralysis being caused by dentition.

Mr. KENDALL also endorsed Mr. Carlisle’s observations as to the age at which animals were usually attacked with this disease. He had a case now under treatment ; but he had always looked upon this disease as Malnutrition of the Nervous System, and was occasioned by some fault in the food. With regard to the treatment, he had found a purgative, followed by tonics, had been successful, though the recovery was a slow process.

Mr. ROBSON’S experience had found the Paralysis affect animals of all ages ; but this would not be Dental Paralysis spoken of in the paper.

Mr. TALLENTIRE wished to know if Mr. Carlisle would advise a seton being run up the forehead.

Mr. CARLISLE : No.

Mr. THOMPSON confessed that the idea was a new one to him ; but from what had been said, Mr. Carlisle’s theory seemed feasible, that rye-grass and dentition might have the effect suggested.

Mr. WALKER (Kirby Lonsdale) explained his treatment of two cases of Stringhalt, in each of which the horses had the peculiar movement described by Mr. Thompson.

Mr. THOMPSON said he had found bromide of potassium successful in similar cases ; but it was a very great point to at once examine the animals’ mouths, relieve the congested parts about the gums by lancing freely, place them under the influence of the bromide, and then put in the nux vomica.

Mr. ARMSTRONG did not think he had ever seen a case of this kind. He

had seen several cases of Stomach Staggers, chiefly in elderly horses. He had a case then under treatment—horse, six years. It seemed more a case of Chronic Tetanus. Had gone on for five or six months. Perhaps a seton behind his ear would relieve him.

The CHAIRMAN expressed their indebtedness to Mr. Carlisle for bringing the subject of Dental Paralysis before them. It was a view he had never taken or heard of before. We ought to remember the nervous system of animals was exceedingly curious and complex. His own opinion very often had been, with regard to the illness described, that it had been caused by the high sun. He had seen cases of that kind. Extremes often produced very nearly the same appearances. He had seen horses perished in water, or caught in boggy land, show very similar symptoms of Paralysis. These chronic cases of immobility, as are mentioned in Williams' works, seem to show that a great deal depends upon the seasons; that when fodder is badly housed, not only with the ergot of rye, but also with fodder, animals frequently have the complaint as badly in winter as in summer time. Improper food being almost in a poisonous condition when administered. He recommended notes of observation to be made in peculiar cases, particularly keeping the age of the animal in view. With regard to treatment, he had invariably treated such cases by putting a good seton at the back of the neck, blistering very liberally, and keeping up the irritation some time. He had found it best to administer a bold purgative. He could not say he had ever found benefit from bleeding; but prompt and decisive action, followed by a good dose of spirit, which seemed to have the effect of causing the gastric and other juices to secrete freely, had. It was a difficult matter to get the bowels to respond to the action of purgatives in these cases of brain and nervous disorders.

Mr. HARRISON now thought he had been discussing some other complaint. As to the treatment of Grass Staggers, which arose from the quality of the food, he applied cold water to the head and sheep skin to the back, without putting in a seton, which only caused the animal to be tortured, and was put in on speculation.

The CHAIRMAN remarked that the animals were three-parts insensible to anything of the nature of pain or otherwise.

Mr. DONALD thought the paper would bear a good deal of thought. The theories were open to objection, but Mr. Carlisle's extended experience made him (Mr. Donald) diffident in remarking on them.

Mr. CARLISLE, in replying, said he should have liked a little more discussion. Two or three points had never been touched upon: age, for one thing. They never saw the disease in a horse after four years old. You may see partial Paralysis, but not through the whole system. What influenced him in his theory of dentition was, that he never saw a case in a horse over four years old. He saw it from eighteen months, but most frequently about two or two and a half years, before the first dental removes. There was another feature worth a thought, and that was the peculiar way the horse had of going. They were never consulted in a case of Kumri until the illness was established, very possibly three weeks or a month; the owner having seen something very peculiar in his going, and particularly, as observed in my paper, it has come suddenly upon him. He makes a rush forward, as if he was alarmed by an object, and it takes much to set him right again. When he trots he does so awkwardly. There was no other disease which affected a horse in the same way. He did not mean to say that dentition was the sole cause. There would be objections to the theory because it was never broached before. As to treatment, bleed from the temporal artery. There is at once a considerable relief for perhaps forty-eight hours. The illness, however, always returns, unless you start with your counter-irritation. It was of no use giving bromide of potassium. Brisk purgative was the best

thing, keeping up that with a drachm of nux vomica, and three drachms of nitre, if you could administer it. He dressed his setons with nux vomica, and thus had no difficulty in getting the medicine administered. He had no doubt that the seeds which the young horses nipped off the top of the grass had a good deal to do with the disease. It was an important excitant, and, meeting with the secretions in the stomach, might have the effect referred to. I have no knowledge what the chemical action of this might be. It sometimes passed for Sunstroke, or it was the cold east winds blowing in hot weather, or it may be taken for Grass Staggers, and is treated for that, too. A horse would get well in that case in three or four days. You cannot cure a case of Kumri in as many months, and perhaps when he does get well there is a strange pulling out of the hind leg; there is very often something lurking in the system. Cases are infrequent—not at all in some years, and a great many proportionately in others. There seems to be a predisposing agent in all nervous cases. He instanced several strange freaks in connection with dentition, and produced a milk tooth taken from the base of a horse's ear, and in another case a perfect eye was found resting on the temporal bone. There seemed to be a very great connecting medium in diseases, *e.g.*, Tetanus resembled Kumri very much. He thanked them for their attention.

The further discussion of this subject was postponed till next meeting.

The CHAIRMAN then called upon Mr. Donald to introduce for discussion—

THE RESPONSIBILITY OF VETERINARY SURGEONS IN THE EXAMINATION OF HORSES AS TO SOUNDNESS.

He said :—

Gentlemen, this is a subject upon which opinion is very much divided, and much might be written by the way of commentary on the various opinions held by different individuals, but I shall purposely avoid trying to reconcile or disprove the different views held.

I will introduce the subject in the form of three questions, quoting a few cases and opinions bearing upon the points, and leave the further elucidation thereof to the meeting.

Firstly.—Is the veterinary surgeon pecuniarily liable for errors of judgment, or mistakes, in the examination of horses as to soundness?

Secondly.—If so, how can he best protect himself?

Thirdly.—Is the usual fee of 10s. 6d., for examination, a fair and reasonable remuneration for the risk, responsibility, and service rendered?

Firstly.—Is the veterinary surgeon pecuniarily liable for errors of judgment, or mistakes, in the examination of horses as to soundness?

This question was much discussed and written upon in 1879 and 1880. It was introduced by Mr. Fleming, in a paper on the "Veterinary Surgeon's Responsibility," in which he said, in the examination of horses as to soundness, the veterinary surgeon assumes serious responsibilities, which do not always cease at the time of examination, but may continue for some time, if recent instances are to be taken as evidence. It removes the responsibilities of buyer and seller, and places these on the shoulders of the experts, with the knowledge that they may be legally sued and cast in damages. In committing their interests to his judgment, and remunerating him for his services, they have an undoubted claim upon him for redress, should his testimony prove to be erroneous.

The case of *Murdock versus Swann* seems to have an important bearing on this point. In this case, Mr. Murdock, M.R.C.V.S., Leeds, sued a Mr. Swann for professional services rendered in the examination of horses. The defendant, Swann, repudiated his liability, and set up a counter claim,

holding the plaintiff Murdock liable for error of judgment in wrongly certifying the animal's age.

The Judge found Murdock was not entitled to his fees, and also found in favour of the counter claim, for which he gave verdict for £15 and costs. This case cost Mr. Murdock about £100 expenses.

Mr. Peter Taylor, speaking at a meeting of the National Veterinary Defence Association, in 1879, said they had an able and judicious member on the Council of that Association, who considered that we are entitled to our opinion, and unless it can be proved, we have a right to give it, and would not be actionable in a court of law ; but the Leeds case, he observes, is one that places upon record the fact, that a professional man is considered an expert in that particular branch of science he represents, and is actionable at law for a sum of money if he conscientiously gives an opinion which would be at variance with two of his brother experts. Mr. Moore, of London, says there can be no doubt whatever that we are liable for damages, in the examination of horses as to soundness, in the event of a mistake.

At Liverpool, in 1878, the National Veterinary Defence Association arbitrated two large claims against veterinary surgeons, settling them at a cost of £66 12s., and the President remarks that a great number of other cases have been arranged and settled by the tact and wisdom of that Society. Besides, many cases have received their opinion as to the advisability of an amicable settlement, or as to the most prudent course to pursue. The particulars of these cases I am not able to give you, but the fact is that they have been settled by that Society, thereby admitting their liability.

The preceding remarks seem to answer our question in the affirmative.

Now let us see how far we can adduce evidence to disprove these opinions.

Mr. James Lambert, commenting on Mr. Fleming's remarks, says : " I beg to dissent from the opinion that a veterinary surgeon is justly responsible at law for the consequences of his ignorance. Reasonable skill, of course, is necessary, but the common-sense view of the matter is that the employer of the professional man, being free to choose, engages him because he thinks his ability will suit his purpose, and he is not entitled to fix a standard of knowledge, unless there be some special agreement."

Mr. T. Dollar, London ; Tom Taylor ; Lawson ; and Hopkins, coincide with Mr. Lambert's opinion.

The case of Walker *versus* Barling, tried at Derby, was an action brought by a gentleman named Walker against Mr. Barling, V.S., of Hereford, to recover £131 damages, for alleged negligence of defendant in giving a certificate of soundness of a horse suffering from Chronic Lameness, it being alleged the horse suffered from Navicular Disease. Mr. Dugdale, Q.C., who appeared on behalf of Mr. Barling, addressing the jury, said this was a peculiar action, and he doubted whether there had been one like it before. The issue was, did the defendant use ordinary skill and care in the examination of the horse ? It was not a case of mistaken judgment, but whether he had not brought reasonable skill to the practice of his profession.

The defence set up was that the horse was apparently sound on the day the certificate was made, and that in his examination defendant acted with ordinary skill and care.

The Judge, after summing up, put the following question to the jury—Was the defendant guilty of negligence in giving the certificate complained of ? The jury found defendant was negligent in giving the certificate, but assessed damages at one farthing.

Judge : Verdict for plaintiff, nothing to be said about costs.

Mr. Barling was supported by Messrs. Thomas Greaves and Peter Taylor, Manchester, and Professor Pritchard, who testified to the correctness of Mr.

Barling's certificate. In this case the verdict against Mr. Barling goes to prove the veterinary surgeon's liability ; but the opinion of both counsel and judge seems to lay down, that it is necessary to prove negligence and want of ordinary skill and care. In this case we have both a *pro* and *con* to our question.

At Penzance County Court a case was tried, in which William Mann sought to recover £50 from Mr. John Stephens, veterinary surgeon, Penzance, for having certified a horse sound which was a roarer.

In this case His Honour said, for the plaintiff to support his action, he must prove that the defendant acted as no intelligent and properly educated veterinary surgeon would have done when he examined the horse, and that he did not exercise a reasonable amount of skill and intelligence. The plaintiff failed to make out his case, and the Judge gave a verdict of non-suit.

(To be continued.)

ROYAL COUNTIES VETERINARY MEDICAL ASSOCIATION.

A MEETING of the above Association was held at the First Avenue Hotel, London, on 27th November, W. G. Flanagan, Esq., President of the Association, in the Chair. There were also present twenty-nine members and three visitors.

The following gentlemen were unanimously elected Honorary Associates, viz. :—James McCall, Esq., Principal, Veterinary College, Glasgow ; Wm. Williams, Esq., Principal, New Veterinary College, Edinburgh ; Thomas Walley, Esq., Principal, Veterinary College, Clyde Street, Edinburgh.

The following gentlemen were unanimously elected members of the Association, viz. :—Mr. W. Wilson, F.R.C.V.S., Berkhamsted, Herts ; Mr. J. Matthews, F.R.C.V.S., Royal Horse Guards (Blue) ; Mr. Charles Sheather, F.R.C.V.S., Regent's Park, London ; Mr. Arthur E. Barlow, M.R.C.V.S., Reading.

The TREASURER read a statement of accounts for the past year, which showed a balance in hand of £41 5s. 10d.

The following Office-bearers for the ensuing year were unanimously elected, viz. : President—Mr. J. F. Simpson, F.R.C.V.S., Maidenhead. Vice-Presidents—Mr. H. L. Simpson, F.R.C.V.S., Windsor ; W. G. Flanagan, Esq., Reading ; Mr. F. W. Wragg, F.R.C.V.S., London ; Mr. Geo. A. Lepper, F.R.C.V.S., Aylesbury. Hon. Treasurer—Mr. Jas. P. S. Walker, F.R.C.V.S., Oxford. Hon. Secretary—Mr. H. Kidd, F.R.C.V.S., Hungerford.

Professor PRITCHARD then delivered a Lecture on—

“STABLE MANAGEMENT.”

He said :—

Mr. Chairman and Gentlemen,—I, for one, am not very fond of long sermons or lectures ; an old friend of mine used to say that if they are long, they ought to have a great deal of subject matter in them, to make them interesting. I propose firstly to speak of the stable, and afterwards of the treatment of the horse. Of course, a great deal of what I shall have to say on these points may be considered as universal and general knowledge ; I do not expect to say anything particularly new ; but some may be inclined to differ from me on certain points, and I hope that such gentlemen will give full expression to their opinions, and thus teach me something on this subject. I am of opinion that horses are better in loose boxes than in stalls. Those who have had any experience of the behaviour of horses in the stable, will admit that they can lie down better in the loose box ; they are

more content ; they feed better ; there is less chance of the food being thrown out of the manger ; and the animals are altogether more comfortable. With regard to the size of the loose box, it should be at least twelve feet square—as much larger reasonably as it can be made. As to stalls, I consider that they should be at least six feet six inches wide, by ten feet deep, at the lowest estimate. With reference to the construction of the stable, I propose to speak of the roof, the floor, the manger, ventilation, and drainage. I am very fond of a thatched roof ; it is the warmest in winter, and the coolest in summer. I know that the objection to this is, that in towns a thatched roof is almost an impossibility, and that even if this were not the case, it is unsightly. But this difficulty may be got over. The roof need not be like a country barn. The outside surface can be of galvanized iron, with the thatch underneath, and laths. This makes an excellent roof—warm in winter and cool in summer. As to a loft over the stable, I know that space is frequently an important consideration ; still, I say, “When you can avoid it, do not have a loft.” When one is absolutely necessary, a continuous shaft should be made through the roof. This is a good arrangement, and can be easily carried out. The floor should be above the level of the ground outside. There are several good reasons for this, one of the most important of which is that the drainage is facilitated. It need not be so much raised that the horse stumble in entering the stable ; a few inches above the ground level will do. On the subject of the material of which the floor should be composed, opinions differ. Some advise one plan, and some another. Amongst the various floors recommended are blue Staffordshire bricks, with furrows in them ; square pieces of rough granite ; pale-coloured bricks ; asphalte ; a mixture of cinders and lime, or of sand and lime. The best floors, in my opinion, are those composed of blue bricks, provided that the grooves in them are sufficiently deep. If they are not deep you will find that horses slip on them ; but if this depth of groove be enough, this brick makes an excellent floor. As to the pale bricks, I should never advise their use ; they wear badly, and until they are worn to some extent, they make a very slippery floor. Asphalte, again, is terribly slippery, and many accidents are caused by its use, both in our streets and stables. A mixture of ashes and lime makes a very good and almost everlasting floor, if it is allowed time enough to harden. A floor of sand and lime is a very good one, but does not wear so well as that where ashes are employed. It is necessary that the floor should slope to some extent. In my opinion it should slope from the outer borders towards the centre ; in the case of a stall, from the manger towards the back. The slope should only be sufficient to allow of the fluid running off ; if it is too great, an injurious strain is thrown upon the hind quarters of the horse.

The best manger is an iron enamelled one. There are, however, iron mangers made of cast-iron, with an ordinary iron surface in the inner part. There is a manger very superior to this : it is covered on its surface with white enamel, and with the slightest care it is always as clean as a dinner-plate. The objection to the iron manger is that horses will occasionally put their feet into it, and numbers of accidents have taken place from the manger breaking and the animal getting a lacerated limb as a consequence. This can be avoided by packing in the under surface of the manger. There is nothing unsightly about this, and it is quite solid. A great mistake is often made in having the mangers too large. I am not an advocate of giving the horse a large quantity of food at a time, as he wastes a great part of it. If, instead of having a semi-circular front to the manger, it be made straight in front, it is almost impossible for horses to throw the food out. I know of a stable with such mangers, containing about one hundred horses, and you may go round on a Sunday morning—when horses have the most time to waste their food—without finding a handful on the floor.

In alluding to the subject of ventilation, I cannot but be astonished at the differences of opinion which exist as to the number of cubic feet of air necessary for a horse. Some will say five hundred feet, others twelve or fifteen hundred ; I think that there should not be less than eight or nine hundred feet, and as much more as you can obtain. Some of you will say, "Yes ; but we cannot get that ; the size of the stable will not allow of it." I could take you to railway arches where there are between eight and nine hundred horses, and some time since, if you entered in the morning, you would think you were in an oven. The engineer said that the arches could not be so altered as to secure the necessary ventilation ; accordingly the use of an arch here and there was abandoned, and now the place is well ventilated. This is the remedy when space is so valuable : lessen the number of horses in the building. It seems to me that nothing is more simple than to ventilate a stable, and I am astonished at the number of schemes which are propounded, some of them very expensive. To put the matter plainly, you want an opening near the floor, and another near the roof. The air becomes lighter from the increase of temperature surrounding the animals ; it ascends, and if it is to be got rid of there must be some outlet at the upper part of the stable. Fresh air must also come in, or the other will not go out. The only thing I stipulate for in the simple plan I allude to, is the avoidance of draughts ; some people say that it is necessary to have an opening over the horse's head ; in my opinion this is quite an erroneous idea. I shall be glad to hear gentlemen present on this point.

It is a great mistake to have a drain, a place for the collection of urine, in the stable ; it should be outside. I would not have any underground drainage. The part of the floor which conveys the fluid away should be grooved and on the surface, and these grooves should be continuous to the outside of the stable. The late Professor Spooner built a stable at the lower part of the lower paddock, near which now stands one of the lecturing rooms. You will find that the drainage is on this principle : there is a groove not more than half an inch deep by two inches in width, commencing from the centre of the stable. The floor is made to slope towards that groove, which runs outside the box. It then leads into a long one, and from that proceed other grooves to the outside. Some people will say that this cannot be done in large stables. For the information of such, I may say that I had the superintendence of the building of a cart-horse stable, where thirty or thirty-five waggon horses are kept. I adopted the same system, and you will find that stable always sweet, because there is a facility for the urine to pass away. If you have the usual urine gutter along the floor, it is always choking ; it conveys the urine into some kind of receptacle inside the box, and do what you like there will always be an offensive smell. With the groove I have mentioned, and a tap turned on now and then, or a bucket of water thrown down, you have the stable always sweet.

Horses in stalls must always be tied up, and it is better to have a rein on each side of the head-collar. Chains are objectionable on account of the noise they make ; hempen halters are very readily worn out, and horses gnaw them. I recommend a rein of hemp, into which horse-hair is twisted. The advantage of having a rein on each side of the head-collar is that the animals cannot turn round, and they cannot so well get their hind legs over the rein. The head-collar should have a nose-piece with a buckle to it. The saddler makes the head-collars all of one size for all horses, and many accidents occur from the horse putting his foot into the nose-band of it. If there is a buckle on the nose-piece, this can be prevented by adapting the size of it to the horse. Then again, many horses will slip their head-collars and get loose. A strap round the neck is often recommended as a preventive. As to holding the horse, it answers the purpose, but it spoils the look of the

mane. I will suggest to you a means of preventing this awkward circumstance happening: take the ordinary head-collar, attach a loop at the back about an inch long, through which is a strap, about half an inch in width, to buckle round the neck. This adds very little to the expense, and renders it impossible for the horse to get off the head-collar. For bedding, I like straw. Thousands of horses are bedded with moss litter. I am obliged to meet with it, but hate the sight of it, and do not believe that there is any economy in the use of it. If you will take twenty-five horses out of one stable bedded on straw, and twenty-five out of another stable bedded on moss litter, I could tell you which were bedded on straw and which on the other material. Horses do not rest upon these other materials as they should. If a horse is bedded with nice clean straw, he will eat a certain quantity of it, and it does him no harm, but good. Moss litter stops up the drains and produces a most offensive smell. I know very well that there are many advocates of moss litter, and I believe that there is no trade in which there is more competition. People say that the urine soaks into the moss litter, which disinfects it. I do not believe this; moss litter interferes with the health of the animals, and another great objection to it is that the stable is never decent. I have no great fault to find with sawdust or sand. Coconut fibre is, in my opinion, preferable to either sawdust or sand. It cannot be obtained everywhere, but in some places may be had for the drawing, and it makes a bedding superior to all except straw. I shall be told that there are horses which, if they are littered with straw, will eat too much of it and make themselves ill. In these cases I would muzzle the animals, or give them some other bedding. It is true that muzzles may produce discomfort, but it is not often necessary to use them; and if they were productive of such ill-effects, race horses—of which the larger proportion wear muzzles—would not be in such good condition as they are. I repeat, I do not believe that there is any economy in the use of these other materials for bedding.

As to cleanliness, I need not speak much. It is as necessary to the horse's well-being as to our own. I think that the horse should be cleaned—I mean groomed—twice a day at least, whether he goes out or not. I recommend the body brush, and think the dandy brush is one of the greatest curses that was ever brought into the stable. Let the animal be well wisped, and the body brush and sponge used. Instead of using a damp hay wisp, try a straw one. It will put a better appearance on the horse's coat, and is better as regards cleanliness. The groom cleans the animal to make him look smart. I am thinking of the benefit he derives from the alteration in his skin, and from the increase of circulation. With regard to the cleanliness of his feet and legs, the feet should be picked out, but the legs should not be washed. In certain circumstances a horse may be washed all over, but I believe a great deal of harm is brought about by this indiscriminate washing of legs. I do not say that Mud Fever will not occur under the best management, but I think that there is no doubt that very many cases are brought about by washing of horses' legs immediately after work. Some grooms will ask you how it is possible to clean a horse's white legs without washing them. I reply that it is quite simple: Firstly, well brush with the body-brush, then use a clean towel and sponge, and you will get the legs perfectly clean. By this means you avoid Mud Fever, Cracked Heels, and the formation of Windgalls to a large extent. Supposing you have a horse brought in from a muddy journey; let him be scraped, the greater part of the mud will be thus removed; put on to his legs an old pair of bandages, and allow the animal to dry. You can then brush off the mud, and get the horse clean without the injurious effects produced by washing the legs. I need not say anything to you about the body clothing. As to bandages, I always use flannel bandages,

which I keep on night and day ; they are only put on tight enough to keep them in the position in which they have been placed. By using these bandages thus the legs wear better, and you prevent windgalls to a very great extent. I recollect a case of a grey mare I had some years since. When she first came to me she had bad windgalls in her hind legs. She was not exactly lame, but used her fetlocks stiffly when she first came out. I simply applied bandages as I have described, and in three months the windgalls had disappeared, and they never returned again. The benefit produced by these bandages is caused by the support of the circulation, and the moderate pressure imparted by them. Race-horses always stand in bandages, and there are no better legs than theirs.

With reference to feeding, I think that this should take place frequently, and not less than four times a day ; but in order to prevent indigestion, I recommend that water should be given before the food. Mr. Abernethy said that we ought never to drink at meals, and that if we must drink, the worst thing we could take was water. I quite agree with him. When you give a horse water, it passes into the stomach, and from there almost directly into the small intestines and the cæcum. I have proved this to be the case. If the water is given first, it at once leaves the stomach, and that organ can deal with the food without interference; the gastric juice, undiluted, can perform its functions. When water is given directly after feeding, it does not leave the stomach ; it dilutes the gastric juice, and what is the consequence ? Instead of the stomach performing its functions, partial decomposition of the food sets in, and then follows the consequence of indigestion. Of the various kinds of provender, I prefer oats, and would advise that they be bought as good as possible, weighing from thirty-eight to forty pounds per bushel. As to quantity, I think a quarter of a peck at a time should be given, with a little chaff or bran. Many horses will greedily swallow their food, and to prevent this, there is nothing like adding a little hay chaff. Some people advocate the crushing of oats. I disagree with this, except under exceptional circumstances, such as where a horse can only improperly masticate his food, or suffers from diseased teeth, or where he obstinately bolts his food. With some horses I would not confine myself entirely to oats. In the case of old horses, for example, or when a little extra stimulating food is necessary, I would give some peas or beans. When peas or beans are given, it should only be in small quantities ; a pint at a feed is quite sufficient, and almost too much. In cold weather, also, a few beans may be given. I disagree with the practice of giving a hunter, after a hard run, raw flour gruel. I think that it is most objectionable, and that it is answerable for many cases of Laminitis, which is attributed to the hard run. If you boil the gruel, it is a different thing, but raw flour and water is a mistake, and those who use it will find it out to their cost. I do not like maize for provender. It does not contain enough of the muscle-producing material, and too much of the fatty. It was adopted by the Midland Railway Company some three years ago, with their eleven hundred horses in London. We found a great many cases of Indigestion and bowel affections, and the animals did not work so well as when they were fed upon other food. Another objection to maize is that the fæces of horses fed upon it has a very nasty effluvium. If I gave it at all, I should soak it or break it. Then, again, it is so difficult to say whether maize has been badly harvested. You cannot discover this by the smell or taste. If it has not been well harvested, it will create a great deal of mischief. At one time I was inclined to blame it largely for Azoturia, and even now I find more cases of this malady where horses have been fed on maize, than where other food has been used. I am of opinion that the horse can have sufficient exercise in the loose box, if he is not taking much stimulating food. If he is being

sumptuously fed, he should go out twice a day. I prefer this to a long single period. Exercise stimulates the circulation in his limbs, and not only there, but in every part of his body. It is necessary for the viscera that the horse should take exercise. To use a trainer's phrase, "It opens his pipes," and sets into play those air-cells which would without exercise be doing little or nothing.

When I began to speak, I had the intention of asking your attention for about a quarter of an hour, but I find that I have already occupied you three times as long. I must, therefore, conclude, and avoid tiring you. This is a subject which has sufficient in connection with it for a course of lectures rather than for one. I, therefore, must ask you to excuse my brevity on some points. While coming here I thought, perhaps, what I had to say respecting the matter was more fitting for a farmers' club than for a meeting of this character. However, probably there exists, and I trust there does, such a difference of opinion in regard to some ideas advanced, as will give rise to a full discussion. Good results must ensue upon this, and I shall be amply repaid for having addressed you to day.

On the motion of Mr. WRAGG, seconded by Mr. LEPPER, it was agreed that the discussion on this subject should be adjourned until the next meeting.

A cordial vote of thanks was given to Professor Pritchard for his address.

A hearty vote of thanks was also given to the President.

The members and visitors afterwards dined together, on the invitation of Professor Pritchard, Mr. Wragg and Mr. Walker (1st Life Guards), and a most enjoyable evening was spent.

H. KIDD, *Hon. Sec.*

CENTRAL VETERINARY MEDICAL SOCIETY.

A MEETING of this Society was held on the 5th November, at the First Avenue Hotel, Holborn, Mr. F. W. Wragg, President, in the chair, and fifteen Fellows being present.

The PRESIDENT addressed the Fellows as follows :—

Gentlemen,—I sincerely thank you for the honour you have conferred on me by my re-election as your President for this session ; it is an honour attended with somewhat onerous duties, but these I intend to use my utmost endeavours to efficiently perform, so that during my term of office the interests of the Society may be steadily advanced.

I must ask you all to give me your assistance in this most worthy object, for by supporting our Society we shall tend to foster amongst us the spirit of scientific advancement, without which the veterinary profession would surely deteriorate. Some of you may aid us by preparing papers on subjects which will stir our thought, and promote interchange of opinion ; all may do great good by their regular attendance at our monthly meetings.

A short retrospect of the proceedings of the Society during the past session may not be out of place : nine meetings were held, and at each was introduced, or discussed, important matter, both novel and instructive, and relating to subjects of the highest interest to the profession. We had in the essay read by Mr. Woodger a valuable review of his experience of the disease Tetanus, with complete statistics compiled from his carefully kept case-books. I must say that in the novel ideas he expressed he afforded us much food for reflection. At another of our meetings Mr. Sheather first publicly exhibited for inspection the novel method of shoeing, which has so deeply occupied his attention and inventive ingenuity for many months past ; the meeting was well attended, and his lucid and carefully thought-out explanations were received with great

interest. I will take this opportunity of expressing our indebtedness to Professor Axe, for the valuable information brought before us in the form of an address on two occasions during the past session, the first being on the subject of Milk in Relation to Public Health ; he succeeded in most ably demonstrating the close interest which the veterinary body has with the subject. His second topic was Azoturia, or, as he would term it, Paroxysmal Hæmoglobinuria ; I consider that not only our thanks, but the thanks of the whole profession, are due to Professor Axe for his investigations into the pathology of this disease. You will remember that he conclusively demonstrated to us the fallacy of the idea that an excess of urea existed in the urine, and proved that albumen was there present, as well as hæmoglobulin.

You will, I think, agree with me in considering we have had a successful session. I hope that during the one now commencing we shall have a still larger attendance of Fellows. Eleven is not a great average, even though we hold many meetings. Possibly it would be to the advantage of the Society if we met less often, for more advantage would accrue to all from the holding of six, or even of four, fully representative meetings.

I am pleased to record the fact that we have added to our strength many new Fellows during the past few months, an evidence that interest in our Society is increasing. Let us all endeavour to maintain the position of the Central Veterinary Medical Society, and in concluding I will ask one favour—let no one of its meetings be less fully attended than to-night's.

ALFRED BROAD, *Hon. Sec.*

THE MIDLAND COUNTIES VETERINARY MEDICAL ASSOCIATION.

THE half-yearly meeting was held at the George Hotel, Rugby, on October 23rd. Mr. H. M. STANLEY (Birmingham), President, in the chair.

Mr. Harry Simpson, J.P., of Windsor, was proposed as a member of the Association.

A letter was read from Mr. Kidd, relative to the Fellowship Clause in the Supplementary Charter.

The PRESIDENT thought it would have been better if the clause had not been inserted.

Mr. PARKER said the clause had been passed too long ago, and they had let it go too long to really make any alteration. He did not think, however, there were sufficient Fellows to carry on the whole business of the Council properly.

Mr. GOODALL could not see why the majority should be ruled by the minority, to start with.

Captain RUSSELL said he hoped they would look upon him as being on the best of terms with them. He reminded them that when the Act was passed in 1876, they did not take the trouble to read it and study it, but allowed the time to go by when they could have qualified as Fellows. They neglected the opportunity to pass the examination to qualify themselves, and now they said to those who had taken the trouble to qualify, and had borne the labour and heat of the day, that the examination was a farce. As one who had passed it, he could say that it was not a farce. Were they to stand by and then, after ten years, try to over-ride that Act simply because they did not take the trouble to pass? Whose fault was it that they had not passed? He heard it said at Birmingham that the profession did not know that this qualification was required ; but did not every one of the profession receive a copy of the Act? And did not those who attended the annual meeting in London, and heard it discussed, want to have it passed over without hardly

expressing any disapproval ; and [now, because they found the advantage taken out of their hands by those who had taken the trouble to pass the examination, they were going to do—he could not say what, he could not quite understand what they wanted to do. He, and four or five others of the Association, had taken the trouble to read and study and go up for this examination ; and in regard to the statement made in London, that after ten or fifteen years the examination could be slurred through, he could only say that they had a most severe examination, and he should feel, personally, much affected if he heard that any members of the profession were admitted to that honourable degree by slurring through, instead of passing, a just and honest examination. But the point they had to argue was the fact that at the last moment they, as members of the veterinary profession, found out that they were going to be deprived of their rights if they did not get F.R.C.V.S. put after their names in the next two months ; and he could only appeal to them, as one man among many, whether it was not an honourable distinction, and whether they, who were always talking that they wished to advance the profession, and give it an honourable status in the world—whether it was not an appeal to their honour to qualify themselves for that distinction. He believed they could do it if they only put their shoulders to the wheel. He believed a proposition was passed by the National Association that after all there was not so much in the clause—as it was possible for those who did not wish to go in for the examination, to pass a practical examination, and not undergo anything of a theoretical nature. He asked them to consider the matter with great deliberation before they attempted to alter the Act, at great expense, and lower the profession in the estimation of the public ; and to consider whether an arrangement could not be made which would leave themselves free to meet the propositions before the Council, and prevent what, in his mind, would be a catastrophe upon the profession if they attempted to rescind Clause IX. He asked the President if he remembered the proposition at the Birmingham meeting ?

Mr. MALCOLM said there was a proposition, carried by 26 votes to 8, somewhat similar to the one to be put, as far as his memory served him. With reference to the Supplementary Charter, several people at the Birmingham meeting were doubtful whether it was really legal, and some of them felt inclined to test it some time or other ; and that was a point upon which he should now like to hear some of the members speak. The very name of the charter would lead one to believe that it was to be something in addition to what had gone before, and that all the members who were entitled to sit on the Council before this Supplementary Charter was obtained were not affected by it.

Mr. GREAVES said the Council in London had had this matter before them ; a committee was appointed to consider it, and had very freely discussed it. The conclusion they came to was to recommend the Council to take counsel's opinion, to ascertain whether the Supplementary Charter over-rides the Charter of 1844, and also whether the members of the profession in existence previous to 1876 would be affected by Clause IX., or whether it would only affect those passed since 1876. The solicitor was now employing counsel, whose opinion they should have before them in January next ; and in his (Mr. Greaves') opinion they must wait till then to see how they really stood. In the event of it being shown that the Charter of 1876 did not over-ride that of 1844, then the whole subject under discussion fell to the ground and would be of no effect. But if it was proved that it did over-ride the Charter of 1844, there was no help for it, and those who wished to become members of the Council must become Fellows, or else they must get a new Charter, which would cost £500 or £600, and they had not that money to spend. From the observations at this and other meetings, he felt that the original promoters of

this Fellowship Clause had been reflected upon. As one of the originators, he could tell them that their object was simply and purely for the good of the profession : to give an inducement, which did not then exist, for members of the profession to study more and raise themselves higher—to obtain more knowledge and become more respected in their profession than they had been up to now. And they did expect that a greater number would take advantage of the Fellowship than had done. There was no provision by which any member could become a Fellow when he had been in the profession fifteen years merely. At the Council meeting it was most indecorously stated by a professor that the examination was a farce. It was not so, and it was only those who did not know who said so. Because only two had been rejected out of fifty, it was said that it was a farce, but they did not remember the other side of the question—that it was the most worthy men of the profession who became Fellows ; and it was only a pity that the members who did not become Fellows did not see it in the proper light, instead of raising this grudging opposition to those who had worked hard for it. They saw what the Council was doing, and he hoped they would have patience and wait till January, so that, if they found their position was untenable, they could recede from it. At the last examination a greater number of practical men went up than ever for the Fellowship, and there was a larger number still waiting to be examined again. When they saw old practitioners, who had been from college twenty years, going up, it was not true that they could not work themselves up to it. They could do it by a little study. It would be improving themselves, and all in this room might become Fellows ; and, as regarded there not being sufficient Fellows, there was sufficient to carry on the business for twenty years.

Mr. MEEK said no doubt it was an unfortunate thing for the profession for allowing the clause to be inserted, and they had been very remiss in not noticing the clause before. As regarded all becoming Fellows, they could not all do so ; and it was not in the power of every one in that room or in the profession. To many men there was no inducement to go and get this honour. If, however, they tried to get the clause rescinded, they should look silly in the eyes of Parliament and of the country. It was a bad job, and he was afraid they would have to put up with it. In conclusion, he hoped a good many members would aspire to the honour before the clause comes into force, in order that the interests of the profession might be attended to in the way they would wish.

Mr. OLVER said he would quite as soon see all the members on the Council as all the Fellows. He was a Fellow—whether honourable or not was not for him to say—but he did not become a Fellow in order to become a member of the Council or Board of Examiners, and he did not desire it either. He denied also that the Fellows aspired to the Fellowship for the purpose of becoming members of the Council or Board of Examiners. He did not regret going in for the examination, as it caused him to look up many works and go through a course of study which did him no harm. He believed there were in the profession members quite as honourable as Fellows, and there was no reason why they should not become Fellows ; and he was sorry there should be all this objection to it. He would quite as soon see the Council and Board consist simply of members, but he thought it would be a cause for regret if the degree were done away with.

Mr. WIGGINS said he objected, and repelled to the utmost in his power, this dog-in-the-manger business of those who could not eat the grapes themselves and tried to prevent those who could. He might tell those gentlemen who were not within the pale of Fellowship, that it was their own fault. Let them not talk about their brains becoming so hard that they could not study and not retain. Why, they had been studying from the period they com-

menced their studentship at College, and their brain had been rendered more capable of retaining what was imparted by study. The lion they thought they saw in the path was a myth. He who hesitated was lost, and if they would only say, "Excelsior," and push over the difficulty as he had done, they would succeed ; and although the examination was one which no man need be ashamed to pass, they were as capable as any of their fellows. It only wanted determination, and the difficulties were passed.

The PRESIDENT reminded Mr. Wiggins that the discussion was in reference to Clause IX., and nothing to do with passing the Fellowship. He had listened with great earnestness, and all he could gain from Mr. Wiggins was that he was trying to persuade the profession to become Fellows. That was not the question. The question was whether Clause IX. was to rule all the members of the profession—whether next year they could only appoint members to the Council and the Board of Examiners, who are also Fellows.

Mr. BLUNT : You have only to send a cheque for £15, and they give you the Fellowship.

Mr. CARLESS said until counsel's opinion had been given to the contrary, he should say that a Fellow had no greater right to sit in the Council than he had. It would be robbing the profession of a birthright they received when they passed the College.

Mr. GOODALL moved the proposition contained in Mr. Kidd's letter, as follows :—"That it is absolutely necessary for the welfare and encouragement of the members of the Royal College of Veterinary Surgeons, that they have free and unlimited choice in the selection of members of the profession to serve on the Council. The members of this Association therefore petition the President and members of the Council, to take the necessary steps to have Clause IX. of the Supplementary Charter, granted by Her Majesty the Queen on the 23rd August, 1876, rescinded."

Captain RUSSELL repeated his opinion that the Supplementary Charter was intended as an addition to, and did not over-ride, that of 1844.

The PRESIDENT said he quite agreed that those who were members of the profession before the Supplementary Charter was passed, ought to be eligible for the Council and the Board of Examiners, if they liked to go in for it. As to being their own fault if they did not go in for the Fellowship—as Mr. Carless had said, that was no reason why they should be deprived of being on the Board of Examiners. Those members who were growing old in the profession, and whose experience was more matured, should be the proper people to rule the profession, and not the junior members of it who come afterwards. It was a gift given to the old ones, but in a few years it would only remain to the few, as there were very few who had accepted this offer of Fellowship. Had there been more, he did not think the question would have been raised, and they, as members of the profession, would have been satisfied if they had an adequate number to represent them ; but they had not. If many of them had known of this when they were in College, they could have passed as Fellows, but they did not know, and, as Mr. Meek had said, they could not give time to it now. He thought the clause, as it was framed, must have been an oversight.

Captain RUSSELL said he would propose, as an amendment : "That no steps be taken until the opinion of counsel has been received."

Mr. PRITCHARD seconded the original proposition.

Mr. GREAVES did not see the value of persisting in this proposition. It would be better to wait till they knew what the opinion of counsel was before taking action. He was quite of opinion that counsel's opinion would satisfy both members and Fellows.

Mr. BLAKEWAY said that the question really put by Mr. Simpson before the Council was, that a Committee of the Council should be formed to

investigate the matter under discussion, viz., Clause IX., and that was carried almost unanimously ; and at the last meeting that Committee recommended that the opinion of counsel should be taken.

Mr. CARLESS strongly advised that the opinion of the meeting be taken now, so that it could go forth generally what they thought.

Capt. RUSSELL asked them not to look upon him as their enemy, as he should certainly vote for the original proposition, because he thought they were justified in making inquiries into what was necessary. But he was afraid they were throwing their votes away, because when they met again they would have the opinion of counsel before them. He would, however, withdraw his amendment, and vote for Mr. Goodall's proposition.

The PRESIDENT then put the resolution, and declared that fourteen voted for it, and one (Mr. Wiggins) against it.

The PRESIDENT then moved, "That they should decide what works should be presented to the Birmingham Medical Institute, for their extreme kindness in granting the use of their rooms during the Congress Meeting, and what sum shall be awarded for that purpose." He went on to explain that Dr. Gamgee greatly assisted them in obtaining the rooms, and if they had had them in any other building they would have had to pay for them, and Mr. Gamgee thought, as they used the library, it would be well to give books.

Mr. MALCOLM said when he first went to ascertain the terms, he was told that as they were a branch of the medical profession, the rooms would be placed at their disposal entirely free. It was, therefore, entirely optional whether they gave a present or not.

Mr. GREAVES said it was perfectly right that they should make them a present. He suggested various suitable books, but thought, perhaps, the selection of them had better be left to a committee.

Mr. OLVER stated that it was quite understood by the Provisional Committee that they would be in honour bound to make a present to the Institute. The very handsome manner in which they were received by the medical profession of Birmingham added considerably to the success of the Congress. They not only placed the whole of their premises at the disposal of the Association, and decorated them, but more than that, although it was impossible for members of the veterinary profession to be admitted as members of the Institute, any member of the Association introduced by any of the medical gentlemen in the Midlands would be permitted to have the use of the rooms and library free. He (Mr. Olver) believed that as time went on they might be admitted as members of the Institute, which would be very valuable to them ; and whatever books they might now decide to give to the Institute, would also be for the use of the members of the veterinary profession. To bring the matter in form, he moved "That a committee be appointed, consisting of Mr. Parker, Mr. Malcolm, the President, and Secretary of this Association, to consider what books should be given to the Medical Institute, and that the sum of £10 be placed at their disposal."

Mr. BLAKEWAY seconded that, and suggested that some private information be obtained from Dr. Gamgee as to the books that should be given, otherwise they might give them duplicates of what they already possessed, and that would not be wise. He also proposed that, as there were several Honorary Associates on the list of members of the Association who did not subscribe to the funds, that they be asked to join in the gift, otherwise they would, perhaps, feel aggrieved.

Mr. GREAVES said that, as an Honorary Associate, he had already written to Mr. Gamgee that he should have great pleasure in presenting them with £5 worth of books out of his own pocket.

Mr. MALCOLM informed the meeting that another Associate, Professor Williams, had also presented the Institute with a copy of his books.

Mr. BLAKEWAY said the other Honorary Associates, Professors Pritchard, Fleming, and Walley, would no doubt be glad to assist them.

Mr. MALCOLM said they ought to include on the Committee the name of Mr. Olver, the President of the Provisional Committee.

The name of Mr. Olver was added to the Committee, and with that addition the resolution was put to the meeting, and carried unanimously.

Mr. OLVER wished to bring forward a matter of which he had given private notice, and which he thought would have been on the agenda paper. They were all interested, especially at the present time, in the question of electing members on the Council. When the present Act came into force, by which every member had a voting-paper and could vote for a certain member, they amalgamated with other societies to secure the election of that councilman, and each association named one gentleman for three or four years, and every time they carried their man. Unfortunately, through the laxity of their late Secretary, the thing lapsed, and since then they had not been associated and had not selected a member of the Council. If they were to have a member of the Association on the Council, they must try again to associate themselves with other associations to work with them. If it was to be done it must be done now, for it would be too late at the next meeting, which would be in January, and the Council meeting would be in May. He moved, as a resolution:—"That our Secretary be instructed to communicate with other societies, to get them to join with us in the election of one of our members on the Council of the Royal College of Veterinary Surgeons." He went on to say that the Liverpool, the Lancashire, and the Yorkshire were the associations with which they originally banded themselves. Their only member, Mr. Perrins, came out next time, and it would be unfortunate if the Association were left out. He thought they might give the Secretary instructions, and leave it in his power to do what he thought necessary and right with any of those associations.

The SECRETARY remarked that for the last two years they had tried to work in connection with other associations, but they would not work with them if they nominated more than one member. The year before last two members were nominated, and they had considerable correspondence with those associations, who would not work with them unless they withdrew one name.

Mr. GREAVES thought it was quite right that these associations should act together in the way suggested by Mr. Olver, and he seconded the proposition.

The proposition was carried unanimously.

The next business was the adjourned discussion on Mr. Banham's Paper on "Spavin of Horses," which was read at Nottingham.

The PRESIDENT invited discussion upon the paper.

Mr. MALCOLM produced a capital specimen of a case of Spavin, and explained that he brought it in reference, principally, to Dieckerhoff's theory mentioned in the paper, and especially to the pathology of Spavin. Dieckerhoff stated that Spavin commenced in the bursa under the oblique tendon of the flexor metatarsi. In this specimen they would see that it was one of Serous or Fibrous Spavin. If they got a little roughness on the surface of the bone, he (Mr. Malcolm) said unquestionably there was no operation which would give relief so well as cutting the tendon.

The members having examined the specimen, Capt. RUSSELL said there were Spavins and Spavins, just the same as they had in Nevicular disorder. One man told them it commenced in the bone under the capsular ligament, in the same way as you have Spavin commencing externally to the bone, and also in the articular surface of the bone. It was his opinion that in particular hocks they might have what is called "Jack Spavin," without having the

bursa at all complicated. Judging from what Mr. Banham said in his paper, it was quite possible to have a Spavin where the complication was entirely connected with the bursa. As far as his observation went, he believed Bone Spavins, and Occult Spavins, and Spavins seemed to commence invariably upon the articular surface—by the latter he meant the edge external to the synovial bursæ, and internally to the periosteum, immediately between the connections of the cuneiform bones.

Mr. GREAVES said he listened with very great pleasure to the reading of Mr. Banham's paper. It was a most exhaustive paper, and, in fact, left nothing for them to discuss. But different men had different views. He did not in every point agree with Mr. Banham, nor did he agree with Capt. Russell. In his (Mr. Greaves') opinion, in many cases of Spavin hereditary causes were in operation. He had seen colts born with large Spavins, and it could not be said that they originated from Inflammation in the synovial cavity, or Inflammation in the body of the bone. It was simply a process going on in the bone from hereditary causes, and he believed many other cases might be traced to hereditary causes which they did not think were so, because they did not show themselves externally until, perhaps, several years old. Very often a colt would show no Spavin until it had been broken, and then, when it was put to more stress than usual, they found it went a little stiff, which in a few weeks amounted to lameness; and he believed the germ or first cause was there before the animal was put into exercise. In nine cases out of ten he believed Spavin originated from a taint in the breeding, which was an hereditary cause. On that point he agreed with Mr. Banham, and the longer he was in the profession the more convinced he was that it was a sound opinion. Then, as regarded treatment of Spavin, it was the opinion of some veterinarians that the more severely you treat a case the better—get the little joints opened and the ankylosis closed as quickly as possible. Some veterinarians fired deep purposely to allow the joints to open, and when you get ankylosis the pain subsides; the horse goes stiff, but he goes with less pain. Then, as to severe blistering, some people said it abstracted internal inflammation, acting as a counter-irritant. Others said No! it tends to consolidate the bone and to create more inflammation, and made the process of ankylosis more rapid. He (Mr. Greaves) was of that opinion too. He was of opinion that, if you treat a Spavin at all, treat it severely—open the joints and get rid of the ankylosis as quickly as possible.

Captain RUSSELL said that some years ago, when he was in India, he had an extensive connection with the studs of the Bengal provinces, and talking about hereditary Spavins and Ring-bones, he did not believe in them for this reason: Every year a committee of military men, who were not veterinary surgeons, used to go round the different districts examining the yearlings and two-year-olds as to their qualifications for the service. If not qualified they were condemned, and remarks passed upon them that they were spavined or ring-boned; but when they came round again, when the animals had grown into four-year-olds, to see whether they were fit for the army or any service, it was generally found that the Spavin or Ring-bone had disappeared. In his (Captain Russell's) opinion these so-called Spavins or Ring-bones in the two-year-olds were enlargements of the epiphesis, which were absorbed as the animal grew older, and they were not unsoundnesses or Spavins. With regard to injecting iodine, his experience was against it.

Mr. PARKER said Captain Russell had taken the words out of his mouth as to enlargements. Up to two years old he did not believe there was any such thing as Spavins and Ring-bones; he believed they were protuberances. Lord Falmouth always liked to buy a colt with big joints.

Mr. GREAVES replied that when at College he remembered hearing a letter read, to the effect that Spavins and Ring-bones were as plentiful as blackberries

among colts in America when born. He had seen them himself, and they could be called by no other name ; and they remained so. As to opening the joints—he meant the joints between the small bones—not the true hock joint, there was not much danger ; but if they opened the true hock joint he thought there was great danger. At one time in his life he used to puncture Bog Spavin, and let out the contents, but on one occasion when treating a nice three-year-old he punctured it several times, and the last time he passed in his tube he wounded the capsule of the joint, and the consequence was intense inflammation was set up, and the colt died in a week after from Sympathetic Fever. If you opened the seat of a Bog Spavin, there was danger. Now in reference to judging Spavin, Mr. Banham told them that if it was Spavin he rejected the horse whether lame or not, and that was the reason no dealer in Cambridge would employ him. He had known veterinary surgeons with large experience reject any number of horses with enlarged hocks ; and the late Mr. Ellis, who had large experience, told him before he died that he had made many blunders in rejecting horses which appeared to have unsound hocks, when time proved that they were sound. He (Mr. Greaves) did not think it was right to reject a horse simply because it had strong hocks.

Mr. ORMOND (a visitor) recommended pigment of iodine as a remedy in place of the tincture for injection.

Mr. OLVER said he was very pleased with Mr. Banham's paper—it opened his mind to several matters he had not before given consideration to. He quite thought that Spavin formed in the oblique tendon, and he had no doubt that a division of that transverse tendon would in most cases be of considerable benefit. His experience agreed with that of Mr. Greaves that they got Spavin in newly-born foals and young animals. He had the veterinary superintendence of a large stud of thoroughbred stock, and they were continually getting these things—getting foals born in all shapes and forms—and the old stud groom would tell them that they would be all right in time, and they would be all right by the time they came to be sold. He knew a mare which was a perfect cripple when a foal, but which won everything before it up to six years old. It had Ring-bone and Spavin and everything that was bad up to two years old, but up to six years was one of the best of animals. He had no doubt there was a certain amount of hereditary taint in these matters of Spavin, but he thought there was still more importance attached to the fact that some hocks—weak ones—were more disposed to contract Spavin than strong ones. In examining horses, if a horse had strong hocks and yet moved well, he passed him—he would be all right in time. A horse with large hocks, if both are alike, was really better than a horse with smaller ones, if he moved well and no lameness.

Mr. OVER : Would you pass strong hocks without comment upon them ?

Mr. OLVER : That depends upon circumstances.

Mr. OVER : I think it is best to make some remark about them, whether you pass them or not.

Mr. AITKEN : Big hocks I would most prefer to smaller ones, if they are both alike.

The PRESIDENT said he passed all hocks, he did not care how big they were, if the horse bent them. If he flexed them properly and were six years old, he passed them, and did not care how big they were, provided also that they were both alike. If they were odd hocks he never passed them. In reference to the treatment, he had heard a great deal about firing through the skin in to the bone ; and he thought a man who did that ought to be had up for cruelty to animals. If they wanted to go through the skin at all they had no business to use a hot iron ; it was cruelty, and there was no advantage from it. By cutting through the hocks with a knife scientifically they could obtain all the effects that could be obtained by firing.

Mr. BLUNT : It acts very well sometimes.

The PRESIDENT : It is cruelty.

There being no more discussion upon the paper, the PRESIDENT proposed a vote of thanks to Mr. Banham for the paper. He should have wished to have heard a better discussion upon it, as it was a matter of great importance. He wished Mr. Banham had been present to listen to the remarks that had been made, and to have answered any question.

Mr. GREAVES seconded the motion. He thought the paper was worth a cordial vote of thanks—they seldom had a more valuable paper brought before them. Alluding to firing, it was far preferable to fire deep, and if it was cruelty, it was best to do it effectually.

The PRESIDENT said by firing properly he meant to go into the skin, but not through it. A man who got through the skin did not fire properly.

The vote of thanks to Mr. Banham was then put to the meeting, and carried unanimously.

It was decided that the next meeting should be held at Worcester.

ROYAL AGRICULTURAL SOCIETY.

At the monthly meeting held on Dec. 9th, Mr. Dent placed before the Council the reports of the Society's provincial veterinary surgeons, which had been received since the last meeting of the Committee, and which had been duly considered by them.

Professor COPE reported as follows :—

Foot-and-mouth.

Since the last meeting of the Committee, two outbreaks of foot-and-mouth disease have been reported. The first outbreak was reported from the West Riding, in the neighbourhood of Rufforth, near York. There were ninety cattle on the farm, one bullock was reported affected.

On inquiry, the veterinary inspector found that the animal in question was one of four which were in a field by themselves, that all the other cattle on the farm were healthy ; it was the opinion of the inspector that the sick animal had injured its mouth by licking some irritating substance.

The second outbreak was reported from the neighbourhood of Lancaster, where there were seven cattle and thirteen sheep in a field together. The cattle had been purchased at Garstang Fair on November 24th, and two of them were found to have symptoms of Foot-and-mouth in their mouths on the 30th. The disease, however, has not extended to the other animals in the field, and the two which were stated to be affected are now reported to have nearly recovered.

Swine Fever.

The order for the compulsory slaughter of swine affected with this disease, and of swine herded with diseased swine, came into force on December 1st. The returns up to December 5th show a continued diminution in the number of outbreaks.

This report having been adopted, on the motion of Colonel KINGSCOTE, it was decided to renew the veterinary grant of £250 for the ensuing year.

The Committee recommended that the Agricultural Department be urged to take the necessary steps to organise a system for the investigation of the causes of outbreaks of contagious diseases of animals, and the duration of the vitality of the germs which produce them.

The Committee had met nine times and made nine reports, and they recommended that the following constitute the committee for the ensuing

year :—Lord Egerton, General Viscount Bridport, Lord Moreton, Hon. E. K. W. Coke, Hon. C. T. Parker, Sir M. White Ridley, Sir J. H. Thorold, Mr. G. M. Allender, Mr. A. Ashworth, Professor Brown, Mr. A. C. Cope, Mr. George Fleming, Mr. S. P. Foster, Mr. M. J. Harpley, Colonel Kingscote, Mr. A. Lloyd, Professor Robertson, Mr. G. H. Sanday, Professor Simonds, Mr. Wakefield, and Mr. Jacob Wilson.

Army Veterinary Department.

Gazette, December 8th.

The following veterinary surgeons on probation to be Veterinary Surgeons :—D. J. Barry, J. G. O'Donel, A. E. Richardson, W. R. Walker.

Gazette, December 15th.

The following veterinary surgeons on probation to be Veterinary Surgeons :—E. J. Lawson, H. Wilkinson.

In the *Gazette* of December 8th is published a list of Officers rewarded by Her Majesty for distinguished service with the Bechuanaland Field Force, and among them is the name of Veterinary Surgeon First Class F. Duck who is promoted to the relative rank of Major for the manner in which he carried out the duties of Inspecting Veterinary Surgeon during the expedition, and also in recognition of his previous services in South Africa.

With reference to these services, Lieut.-General Sir Redvers Buller, K.C.B., has expressed himself strongly on several occasions in his despatches from South Africa. In one of these it is mentioned that "Veterinary Surgeon Duck has been attached to the Frontier Light Horse for twelve months, and has had charge of the horses of all mounted corps. We have to thank his skill and unremitting attention for their efficiency. Mr. Duck has also accompanied the troops on all large patrols, and has frequently rendered me great service in action." And in a special recommendation to the Principal Veterinary Surgeon, the same distinguished General says : "During the whole time he was with me, I had to praise Mr. Duck for his attention to the horses and, I may add, for the great skill he showed in treating their ailments. I attribute the efficiency of my men greatly to his care of their horses, and though he experienced throughout the greatest difficulty in obtaining a proper supply of medicines, he appeared never to be at a loss in devising some make-shift for their relief or cure.

"Besides his great ability as a veterinary surgeon, Mr. Duck proved himself a very gallant soldier. He always accompanied me in all big patrols—whenever, in fact, there was a chance of his immediate services proving more useful in the field than in camp ; and I had great pleasure in specially reporting him for gallantry displayed during the retreat from the Hlobana Mountain, on March 28th, 1879, when, taking a dead man's rifle, he volunteered his services with the rear-guard, and was of great assistance at a critical moment.

"I have, under all these circumstances, felt that I should not be doing my duty if I did not bring Mr. Duck's services prominently to your notice."

Obituary.

NO heavier loss has ever been sustained by the veterinary profession than that it now experiences in the death, at the age of seventy-one years, of Henri-Marie Bouley, Inspector-General of the Veterinary Schools of France, President of the Academy of Sciences, Member of the Academy of Medicine, and of the National Society of Agriculture, Commander of the Legion of Honour, Professor of Comparative Pathology at the Museum of Natural History, General Secretary of the Central Society of Veterinary Medicine of France, and member of many medical, veterinary, and scientific societies in that and other countries. Since the time of Bourgelat, the illustrious founder of modern veterinary science, no one has occupied such a distinguished position in our profession, and no one more deserved the position he achieved. Space prevents our giving more at present than a brief notice of this most talented and accomplished veterinarian, a more extended survey of his career being reserved for a future opportunity. So suffice it to say that M. Bouley was born in Paris in 1814, where his father was a very able veterinary surgeon—indeed, his family relations were more or less intimately and widely connected with the profession; consequently, he was born in it and to it. Studying and graduating at Alfort, he became a teacher there, and soon gained a favourable reputation as an anatomist, operator, clinician, and lecturer, as well as a brilliant and instructive writer; the articles he contributed so frequently to the *Recueil de Médecine Vétérinaire* during his early years testify abundantly to this. Occupying the most important chairs at that celebrated school, in time he became its Director, and subsequently he was appointed Inspector-General of the three veterinary schools which France maintains. During a professional career of more than fifty years, he had done more than any other veterinary surgeon to promote that wonderful development of human and animal medicine which marks the history of this century. Ever, in the van, Bouley soon became conspicuous among the medical celebrities of the French capital, even of France, by whom he was recognised as a brilliant and eloquent speaker, clever in debate, a profound observer and reasoner, and an enthusiast in science and scientific work. No wonder, then, that by successive steps he rose to the highest dignity a man of science can aspire to in France—that of President of the Academy of Sciences, the most select and elevated of all the learned assemblies in the world, and which position he occupied at his decease. To show the esteem in which he was held by the Academy, its sittings were adjourned from his death until after his funeral, at which were representatives from it, the Academy of Medicine, and some of the other learned societies to which he belonged. Funeral orations were also delivered on the occasion by some of the greatest scientists of the present day in France; to these orations we will refer hereafter. In his later years, Bouley greatly enhanced his reputation by the courses of lectures on “Comparative Pathology” he gave at the Museum of Natural History, formerly known as the Sorbonne, where he occupied the professorial chair held by the late Claude Bernard, who lectured on physiology, but at whose demise the claims of comparative pathology caused the change. These lectures have been published, the first volume in 1882, entitled, “Le Progrès en Médecine par L’Experimentation;” and the second volume in 1884, under the heading of “La Nature Vivante de la Contagion.” An ardent student of biological science he showed himself to be in these volumes, and in them, as in the Academy and elsewhere, he manifested his unbounded belief in the microbien origin of contagious diseases, and a most zealous supporter of Pasteur in his wonderful researches. When Pasteur announced his discovery of virus

attenuation to the Academy of Sciences, Bouley rose up and began an eloquent address by exclaiming : " This is but the beginning. A new doctrine opens itself in medicine, and this doctrine appears to me powerful and luminous. A great future is preparing ; I wait for it with the confidence of a believer and the zeal of an enthusiast."

Bouley's contributions to veterinary literature are numerous and valuable. The principal are his beautiful and classical treatise on " The Horse's Foot "—a work he did not complete ; the volumes of lectures already referred to ; many articles in the thirteen volumes of the " New Veterinary Dictionary," which is still in process of publication ; articles on Glanders, Rabies, and other subjects in two medical dictionaries ; pamphlets on veterinary matters, and the long list of contributions to the *Recueil*, of which he was editor-in-chief for half a century.

Bouley's personal influence was very great. Beloved by all those who studied under him, his example had a most excellent effect ; and to this influence, as well as to that which he wielded among the *savans* in France, must be credited the greatly increased popularity and esteem which veterinary medicine now commands on the Continent.

Bouley died from heart disease, from which he had suffered for some years, but which, until shortly before his death, did not deter him from toiling as hard and as devotedly at his life task as he had done thirty years before. A friendship of many years' standing had transformed in us what was before admiration and respect, into affection and esteem ; and our last meeting with him at the International Veterinary Congress, held at Brussels three years ago, and of which he was unanimously elected President, served to intensify these feelings.

In heartfelt sympathy we tender our condolences to his bereaved family, and to our colleagues in France who mourn his loss, and are cast down at their bereavement. But the bereavement is not theirs alone ; every member of the profession throughout the world shares in the misfortune that has befallen us in the disappearance of Bouley, the greatest luminary that has yet shone among our professional constellations.

Mr. Thomas Gregory, M.R.C.V.S., of Tunbridge, Kent, died suddenly from heart disease on November 25th, aged seventy-six years. Graduating in 1838, he had practised in Tunbridge for thirty-five years, and gained the respect and confidence of a wide circle of friends and clients during that long period.

Jurisprudence.

IMPORTANT BAD MEAT CASE AT DUDLEY.

THE DANGERS OF MEAT FROM CONSUMPTIVE ANIMALS.

A NEW and important point in connection with the sale, or the offering for sale, of diseased meat, came before the Dudley magistrates on the 9th December. On that day, before Mr. J. R. Tilley and Mr. John Bateman, Thomas Anchor Newry, butcher, of 42, New Street, and Upper High Street, Dudley, was charged by the Sanitary Inspector of the Borough with having in his possession, ready dressed for sale, two pieces of beef which were unfit for the food of man, the same being affected with Phthisis.

Mr. Warmington, the Town Clerk, prosecuted ; and Mr. Hugo Young, barrister (instructed by Mr. E. F. Whitehouse), defended.

The defendant pleaded not guilty, and the following evidence was taken :—

Police-constable Cartwright, of Woolaston, said he saw two halves of a cow at Thomas Smith's cowhouse, Woolaston. The meat was of a very dark

colour, with clotted blood on the inside and blood trickling from the sides. The cow's "elders" (udders) were very much swollen, to nearly three times their natural size, and a liquid like milk was oozing from them. Witness marked the meat and communicated with Mr. Pargeter, the Dudley Inspector of Nuisances.

Charles Pargeter said he found two pieces of beef in defendant's slaughter-house. The meat was very dark, and did not appear to have bled properly. On the wall hung lungs, and witness asked the defendant if they belonged to the same cow the dark meat came from. Newry said, "Yes"; and then witness took possession of them, for the defendant was directing his man to remove them. Mr. Abraham Green, the Cattle Inspector appointed by the Corporation, attended soon after. The marked meat was shown to Mr. Green, together with the lungs, and then the whole was removed to the police-station. At the other shop belonging to the defendant two other pieces of the same beef were found.

Cross-examined by Mr. Young : There was no concealment of the meat or lungs. Heard Mr. Newry tell Mr. Green that he had a certificate from Mr. Blakeway, Veterinary Surgeon.

Mr. Abraham Green, M.R.C.V.S., and Borough Inspector, was next examined. He said : I am appointed under the Contagious Diseases (Animals) Act for this borough. Shortly before nine o'clock on the morning of the 9th October I visited the defendant's slaughter-house and found two quarters of beef there. It had not the nice colour that good meat ought to have, being darker, and looking like the flesh of an animal that had not been slaughtered. Having formed that opinion, I asked for the lungs in order to strengthen it. To my surprise I found them studded with tubercular deposits, varying from the size of a pea to a hen's egg. The nodules could be plainly seen from the outside, and I found hundreds of them. I opened the lungs, and the sight at once showed me that the animal was in an advanced stage of Consumption. There were further appearances of the cow having recently calved, for there were signs of bruises on the tissues round the pelvic cavity. Mr. Warmington : If meat is not properly blooded, is it wholesome food? Witness : If the animal is healthy to begin with. Mr. Warmington : What, with the blood in it? Witness : If the animal was a healthy one to begin with, I should say it would not be unwholesome ; I should not like to eat it, though. I don't think it would make healthy meat unwholesome—it would not be so palatable. Mr. Warmington : Could the meat in question, with all the symptoms you have mentioned, possibly be wholesome? Witness : No. Continuing, Mr. Green said : The milk from such an animal would affect people and transmit disease, as we all know, and I believe the meat from such an animal, if eaten, would do the same mischief. Mr. Warmington : Why? Witness : When I cut the lungs they were full of cheesy matter, showing an advanced stage of Phthisis. This was of long standing, of some months I should say. I afterwards saw three pieces of meat at the defendant's other shop, and their appearance was the same as that in the slaughter-house. I went there with Dr. Timmins, the Medical Officer of Health for the Borough. After cutting the lungs I squeezed some portions of them, and there was a great discharge from them of the cheesy matter already referred to.

Cross-examined by Mr. Young : When I went to the slaughter-house I said, "I can't condemn the meat ; you must send for Dr. Timmins." I did that because it is not my duty to condemn the meat. The defendant told me he would get a certificate from Mr. Blakeway, M.R.C.V.S., and that his man had gone for it. A healthy animal not fully blooded would give fair meat. I observed something was wrong with the lungs before I cut them ; you could see the nodules just underneath, they were plainly visible. I should

say that any cow with tubercles such as these was unfit for food. I have heard of Dr. Fleming, but do not think so much of him as a cattle pathologist. But of course he is not to be despised? Certainly not. Despite the opinion of Dr. Fleming, in his "Manual on Veterinary and Sanitary Science," that animals slightly affected should be fattened and slaughtered, and would then be fit for food, I disagree. Where the disease is at the beginning it would not be so dangerous. I think the milk would be first tainted. I do not think it is right to use it after the first stage of Consumption. I think for sanitary reasons you should not use tuberculous flesh, although an eminent man may say so. I do not know that nine out of every ten animals are affected. I know that the Jews reject every animal showing slight traces of disease, and that they sometimes have five or six animals slaughtered before accepting one. I know, too, that the meat of these animals is afterwards sold to Christians. Mr. Young: Don't you know, from a business point of view, they may be sold? Witness: I say that I believe it is wrong to use tuberculous flesh. Do you say that every animal which is killed soon after calving is unfit for food? Witness: No; a cow suffering from the first stage of Milk Fever may be killed and eaten. How long would you allow for the meat to become unfit? It depends; sometimes it may be two or three hours, and sometimes fifteen or sixteen; it is a question of degree. I say this cow was not fit to eat, because she had Tuberculosis. The beast was not bound to look emaciated, because she was affected with Tuberculosis; sometimes they grow fat in the early stages of Consumption. They may live two years and more in a state of Consumption.

Re-examined by Mr. Warmington: This animal was some months advanced. There has been a change in the opinion of veterinary surgeons as to the influence of the meat from consumptive animals. Dr. Fleming wrote the work in 1875, and if he had to write it now he would change his opinion, I believe. It is now generally accepted by the faculty that such meat is unfit for food.

By the Magistrates: The whole of the blood in the cow must pass through the lungs, and small particles of the matter would be taken into the blood, especially in the advanced stages. The lungs are the places in which the blood is purified. In the present case there are large abscesses in close connection with the capillaries; the blood would conduct disease to the flesh.

Mr. Daniel Timmins, surgeon, and Medical Officer of Health for the Borough, was the next witness, and he corroborated Mr. Green in every particular. He also expressed his full concurrence in the theory that an animal so badly diseased as the one in question was, if eaten, bound to communicate disease to those using the flesh for such a purpose. The cow was in a Consumption, as well as suffering from the effects of Milk Fever brought on after calving. She was not slightly, but considerably, affected. Germs of disease might pass from one part of the body to another, and therefore it was not only the lungs that were not fit to eat, but the flesh also. It was clearly established now that the germs might be transferred to the human system.

Cross-examined: Witness could not agree with the dictum of Dr. Fleming, although he was considered an authority, that animals in certain stages of Tubercular Disease might be safely eaten. He also believed that in the ten years Dr. Fleming would alter his opinion.

Mr. Young, for the defence, argued that Newry had no guilty intent. He had a certificate from Mr. Blakeway, a veterinary surgeon, and acted upon it. There was no trace of Consumption until the post-mortem, and his client could not have the scientific knowledge of veterinary surgeons. He then called:—

Mr. Jas. Blakeway, M.R.C.V.S., Stourbridge, who said: I saw the cow on

the 7th October, and found her in very good condition, far better indeed than I should expect a cow in an advanced stage of Consumption. She had recently calved, and was in the first stage of Milk Fever. On the following Thursday she was no better, and I sent my brother to see her. In my opinion she was not so far advanced in Milk Fever as to render her unfit for food, and I should have joined my brother in his recommendation to kill her for food. After the cow was killed I went to inspect the flesh, and I found the lungs affected with Tuberculosis; but these tubercles were enclosed in a cyst, and did not affect the lungs.¹ The chest showed no signs of Tuberculosis at all, and it always does in an advanced stage. In my opinion, from what I saw of lungs and the lining of the chest, there was not sufficient to render the whole carcase unfit for food. I also examined the flesh and lungs after it had been condemned, and, after all I saw, I still think it might have been safely used by human beings.

Cross-examined: The cow was not in an advanced stage of Consumption, but her lungs were considerably affected. The blood of the animal only coursed through the sound part of the lungs.—Will you swear the blood is not affected?—I will not; it is a matter of opinion. The matter in the lungs is formed first from the blood, but afterwards they are cut off in a cyst from the other part of the lungs.—How do the cheesy matters grow?—They keep on growing, but they do not break into the otherwise sound part of the lungs until the last stage.

Mr. John Blakeway, M.R.C.V.S., brother of the last witness, corroborated, and added that he advised Smith, the owner, to have her slaughtered, believing she was in a fit state for food. On the 8th October he was asked for a certificate, and he gave one, saying she was fit for food. He had not seen anything to cause him to alter his opinion.

Mr. Thomas Chambers, M.R.C.V.S., said: I have heard the state of Milk Fever in which the animal was, and I consider she was fit for human food. The cheesy deposit in the lungs spoken of by Mr. Green was not of more than two or three months' standing. It was semi-fluid, but I do not think it was enough to condemn the flesh; it is a question of degree, and in my opinion it had not reached the dangerous point. There was plenty of fat and bark, although the meat was darker than usual. That is due to the animal lying down for a considerable time after calving, and to the fact that she suffered from Milk Fever.

Cross-examined: Did you see the lungs?—Only a portion of them.—Did you cut that open?—No; the piece I had was towards the edge.—Had the other portion been a mass of disease, would it have altered your opinion?—After hearing Mr. Green's evidence, I still think the meat was fit.

By the Magistrates' Clerk: At what stage does Tubercular Disease become dangerous?—When it affects the meat itself.

Re-examined: You backed your opinion, I believe, by having a piece cooked and eating it?—Yes

Thomas Smith, the late owner, said he gave £26 for the cow, and through a neighbour, who sold the cow to the defendant, he had £5.

The Magistrates inflicted a fine of £20 and costs on each summons, making £40 and costs, or two months' imprisonment; they also allowed Mr. Green and Mr. Timmins one guinea each.

Notes and News.

M. PASTEUR.—A Boulogne correspondent writes:—"The Havre Town Council has voted a sum of 1,000 francs to M. Pasteur, as a mark of gratitude for his services, and as a contribution towards the expenses of his philanthropic

investigations." One of the persons M. Pasteur inoculated, to prevent him being attacked by Hydrophobia—he having been bitten by a rabid dog—has died of the disease. It may be mentioned, however, that the protective inoculation was not made until a month had elapsed from the time of receiving the bite. He has now inoculated sixty-eight persons.

BERLIN VETERINARY SCHOOL.—For the current session, the number of students attending this school is 330, of whom 152 belong to the military division. This increased number has necessitated an alteration in the teaching. Professor Dieckerhoff has taken the chair of Clinical Medicine and also that of Equine Jurisprudence; Professor Môeller has assumed the duties of teacher of Clinical Surgery; Assist.-Professor Peters takes the Polyclinic, and Lüpke the Canine Clinic. The distinguished Director of the school, Professor Roloff, is, we regret to learn, on temporary leave of absence owing to illness. His duty as Director has been transferred to Professor Müller, while Professor Eggling undertakes to lecture for him on Jurisprudence.

DOCKING.—The length of the dock—that is, the tail itself minus the hair—is from a foot to two feet in length, at the very longest; but a morbid taste at times appears to consider the natural dock too long to please the eye; the tail is, therefore, amputated to a variable extent, from an inch or two from the extremity to within a few inches of the body. There can be no doubt that, in the great majority of cases, the painful operation of “docking”—as chopping off a piece of the tail is termed—is performed without any reasonable pretext, and simply to gratify a morbid taste. Nothing can be more disfiguring, or even hideous, than such a fashion, when carried to such an extent as to leave a perfect horse with only a few inches of this most graceful and useful appendage, which was intended by Nature not only as an adornment and defence to the animal, but also a protection to most delicate and sensitive parts beneath. Not only does this docking make the horse a ludicrous effigy, but it renders it for life a victim to the torments inflicted by flies and other insects. The importance of the tail, in this respect, has been so fully recognised by the British army authorities, that an order has been recently issued to the effect that no docked horses are to be purchased as troopers. At one time British cavalry horses were docked and “nicked” (the muscles on the under surface of the tail so divided that this could not be drawn downwards, but ever after carried rigidly upwards like a wooden stump), as well as the ears cropped close to the head. History tells us of the disastrous effects of this mutilation, at least so far as the tail is concerned. For instance, Hartmann (*Traite des Haras*, p. 279) informs us that the English cavalry, during the last century, was several times almost rendered useless from the losses among the horses caused by the attacks of flies, from which they could not protect themselves; this happened in 1743 near Dettingen, and also at Fritzlar, Hochkirch, Wilhelmsthal. He also specially notes that in the Seven Years’ War, which commenced in 1756, the flies caused such disorder amongst the horses of the English cavalry at Minden that the battle was nearly lost. All lovers of horses should enter their protests against the continuance of this absurd and pernicious fashion, which is rarely required in order to render the horse more useful, and then only in cases of disease or malformation, or it may be with a view to safety in harness. The latter, however, can only be extremely seldom, as in many countries—for example, the United States, Russia, and elsewhere, where harness horses are as largely employed as in the United Kingdom—docking is not practised. “Nicking” the tail is equally objectionable, except in those cases in which it is badly carried, when division of the muscles may rectify malposition or deformity. Of course, no objection can be raised to cutting the hair to any length which may be necessary, on the score of cleanliness or utility.—*Sidney’s “Book of the Horse.”*

MEMORY OF THE HORSE.—In 1854 "Pumicestone" won the Stewards' Cup at Goodwood. He ran often afterwards, and was generally ridden hard, for he was just good enough to lose, after the fashion described by reporters as "beaten, but not disgraced"; and at length he took such a dislike to racing that he was turned out of training, and ridden by Lord Wilton, his owner, as a hack. After an absence of four years from a racecourse, he was taken to Newmarket to be hacked by Lord Wilton, who chanced one day to be riding with the Duke of Beaufort close by the Ditch stables, when a heavy storm broke over the heath. The two horsemen took shelter in the stables, where some of the competitors were being saddled for an approaching race, and no sooner did Pumicestone see the once familiar preparation than he began to tremble violently, and broke out into a profuse sweat. He thought, no doubt, he was to be raced again. It was four years since he had been brought near anything connected with racing, but his recollection of the business, which usually included a severe finish, was perfectly fresh.

THE GERMAN ARMY.—The Veterinary Establishment of the German Army is fixed at 619 officers. The number of horses is 81,773.

HOW VACCINE VIRUS IS OBTAINED.—In a cow-house at the side of the old turnpike road, in the quaint village of Cos Cob, Conn., two calves can be seen on almost any day strapped to a bench, their feet sticking up in the air, and lots of quills protruding from their bodies. Around the room are razors, knives, bundles of quills, and ropes. A man is usually in attendance. This is a vaccine factory, one of the first established in the country. The quills remain for a short time in the flesh of the calves. As soon as they become filled with mucous—vaccine, as it is called—they are pulled out, sealed up air-tight, and in time do duty all over the world, finding their way to Germany and Australia. Some people imagine that the calves are killed by the process, or are injured so as to be unfit for use. This is not the case, but it is claimed that they are made more healthy by having these sores, for that is all the harm done to them. They seem to suffer very little, and after a few days frisk about as lively as ever. Calves of two colours are preferred at the factory—white and red—and only strong and healthy ones are selected. There is more demand for vaccine at the present time than at any previous period during the five years past.—*New York Herald*.

INOCULATION FOR CONTAGIOUS PLEURO-PNEUMONIA IN BELGIUM.—Impressed with the success which has followed the practice of inoculation in Holland, the Belgian Government has issued a decree establishing the practice of preventive inoculation for Contagious Pleuro-pneumonia under the same conditions as in the Netherlands, and sanctioning an indemnity of three-fourths of the value of the animals which may die in consequence of the operation. With this decree, which is issued to the Governors of the Provinces, is a circular, dated September 7th, containing instructions for veterinary surgeons as to the circumstances in which inoculation is to be resorted to, the manner in which the operation is to be performed, and the precautions to be adopted.

HORSEFLESH IN PARIS.—There are in the French capital nearly 100 establishments in which horseflesh is sold, and last year these disposed of 14,548 horses, 346 asses, and 32 mules.

AN AGED DONKEY.—A donkey, which is said to have been more than a hundred years old, has just died at Cromarty. The animal had been in the family of a Mr. Ross since 1779, and its age at the time it passed to its late owners was unknown.

Correspondence.**PHYSOSTIGMIUM IN IMPACTION.**

DEAR SIR,—In continuation of Mr. Garside's interesting paper on "The Treatment of Colic with Physostigmium," I send you the following case which occurred in the practice of the Lahore Veterinary School during the past winter session.

The case in question—a medium-sized country-bred bullock, about eight years old, that was used for draught purposes, "turning a Persian water-wheel in a well"—was admitted into the hospital on March 31st, presenting all the usual symptoms of impaction of the omasum, "fardel bound," and, according to the statement of the owner, the bowels had not been moved for five days. The animal occasionally showed the ordinary symptoms of abdominal pain—kicking at the abdomen, etc. At 10 a.m., five grains of the extract of physostigmium was administered in a draught, and repeated at 2 and 5.30 p.m. As no result was obtained, ten grains was given at 10 p.m., and at 4 a.m., on the 1st April the bowels were moved, the first two or three motions being large in quantity, of a clay colour, and very fœtid. The animal continued to be purged till the evening of the 1st, when the fæces resumed their normal character. The case was an obstinate one, as the obstruction consisted of "bhoosa," or the chaff of the straw that is broken by the hoofs of the bullocks when they tread out the grain—the method by which corn is threshed in this country. Physostigmium has been constantly given in cases of constipation of the bowels in the horse at the Lahore Veterinary School, in from five to ten-grain doses, with most happy results, but this is the first in which it has been tried with cattle.

Lahore.

J. NUNN, M.R.C.V.S.,

THE ARMY VETERINARY DEPARTMENT.

SIR,—I wish to call attention to a matter of considerable importance to officers of the Army Veterinary Department serving under the Warrant of 1878. I am rather surprised they have never done so themselves; probably the fear of offending the powers that be has something to do with it.

I allude to paragraph 14, which says: "Every year it shall be competent for Our Commander-in-Chief, on the recommendation of the Principal Veterinary Surgeon, with the approval of Our Secretary of State, to select a number of Veterinary Surgeons, not exceeding four, who shall be retained in the Service."

Referring to the Army List, I find—

In 1878 10 men joined	In 1882 0 men joined
„ 1879 5 „ „	„ 1883 8 „ „
„ 1880 6 „ „	„ 1884 14 „ „
„ 1881 6 „ „	„ 1885 8 „ „

It is not improbable that more may join this year.

Therefore, in 1888, 1889, and 1895, at least six, ten, and four men will have to go, no matter how good they are, or what services they may have rendered.

The compulsory retirement of these officers, in the flower of manhood, full of energy and life, may be looked upon in two ways:—

(a) As a loss to the Department.

Men with ten years' experience are bound to be more efficient than young fellows who have just joined, who have to learn army ways.

Commanding officers, rightly or wrongly, do not, as a rule, look upon the "sucking vet." with a very trustful eye; yet it happens in these warlike times that the commanding officer who would not dream of trusting the management of a squad to a raw subaltern, has to rely upon the judgment of an almost equally raw veterinary surgeon for the health of all the horses of his regiment or battery.

I hear that Mr. Walters, in his Suakim report, specially recommends that only experienced veterinary surgeons (*i.e.*, of at least a year's training) be sent on service.

Nevertheless, there stands the clause which ties the hands of the Principal Veterinary Surgeon, and those six, ten, four, etc., men, be their merits what they may, must go.

Now, these men must all be worthless, or they must be a loss to the Department when they retire. That they are not worthless has been proved by the splendid way the country has been served in almost every quarter of the globe, and in six recent campaigns.

The demands upon our branch of the service are daily increasing, and it is said that already nineteen men will be required to found the new India Department; probably, in course of time, more will be called for.

It surely would be better to retain the old men than to swamp the Department with inexperienced young ones.

I do not intend by these remarks to cast a slight upon the youngsters; but it stands to reason that when young fellows are thrown upon their own resources, with little or no experience of army ways, as very frequently must occur on foreign and active service, they will flounder, and be unable, however willing, to do the credit to the Department that old hands would. They do so in private practice sometimes.

(*b*) As a loss to the officers retiring.

Of course, I shall be at once met with the old argument that they entered the service with their eyes open; but I beg to respond that they could not know how this great tontine clause would work. They probably imagined that more would retire or die, being ignorant of the outrageous tenacity of life possessed by veterinary surgeons, who, notwithstanding all the endeavours of an enlightened Indian Government to kill them with overwork, sternly refuse to be wiped out.

How are men, who join, to know how many more candidates will be admitted during the year to increase the odds against their selections?

In 1879 only five entered, in 1880 and 1881 six, but in 1878 ten joined, and in 1884 fourteen, perhaps in 1886 twenty may be taken on.

Every young man, when he begins life, looks forward to the time when he will be able to marry and settle; at least, I think that most of those who get on in the world do. Judging by the young fellows I have seen, they are entitled to look for a wife amongst the upper middle classes. Fancy for a moment, a couple, say, with one or two children, accustomed to the society of officers and their wives, suddenly forced to begin life again. We all know the sort of practice obtainable for £800; but before one can be got, time must pass, and a hole is made in the capital. I may be told that they ought to economise while in the army. I do not think, speaking as an outsider, that a married couple can save much out of £250 in the service, and do justice to the credit of the Department. I may be asked: why should they keep up the credit of a department which they are almost certain to be turned out of? Well, I cannot say.

Now, just imagine the officer who has attended levées, and been presented at Court, starting in practice as a third-class veterinary! See him inquiring anxiously after the health of Mrs. Smyles, the coachman's lady; or the

interesting progeny of Mr. Somebody Else, the studgroom, with a view to the disposal of condition balls ; or perhaps capping Farmer Styles (a dear old man, but unsavoury) with a view to the placement of cleansing drinks.

"Gross exaggeration," I hear some one say. I think not ; queer things have to be done to start a practice ; and with a wife and children dependent upon one, it does not do to stick at trifles. The more prudent naturally do not marry.

And why does this officer suffer thus ? Why is he cast upon the world to begin life *de novo* ? Has he failed in his duty ? No ; he made the blunder of entering under paragraph 14 of the Veterinary Warrant of 1878 ; and the Principal Veterinary Surgeon could not help himself, and with great regret, perhaps, lost a good man.

This clause has been tried in the Medical Department, found impracticable, and abolished, and now the option rests with the *medical officers*, to serve on or retire, as they please, upon completion of ten years' service.

I consider the Army Veterinary Department deserves all our sympathy. In fact, I have reason to believe that a strong feeling exists in the profession on the subject ; at any rate, more than one civil and military veterinary surgeon has spoken to me about it.

The Warrant was promulgated when there were very few men in the Department, and, maybe, it was thought that very few would join, or very few be wanted, therefore the number from which the four were to be selected would be a very small one.

However, thanks to the enormous losses suffered by the country, especially in Afghanistan, through dearth of veterinary surgeons, a fresh departure has been taken.

I am not writing against the principle of selection ; indeed, no one believes in it more than I do.

I think it acts as a spur to all men worth their salt ; for they then know that if they distinguish themselves, they will be promoted or rewarded. But when selection is brought down to such narrow limits as this clause prescribes, it defeats its own object, and becomes a cruel absurdity. In my opinion paragraph 14 should be abolished, and replaced by one giving unlimited power of selection to the Principal Veterinary Surgeon.

If such a clause were substituted, every man would know that if he were worth keeping he would be retained, and also that if worthless he would be as certainly turned out.

In any case, paragraph 14 is an experiment which has already come to utter grief in the sister department, but seems doomed to cause the great loss to the army of a number of good, trained men, at the most useful and energetic period of their lives.

J. F. OLIVER.

[The Warrant referred to was issued when the Department had more officers than are on its establishment now. Under it there is, perhaps, not much danger of good officers being dismissed ; it affords an opportunity of getting rid of those who, from various causes, are not likely to benefit the service, and of retaining those who shall have proved themselves worthy of retention.—ED. *V. J.*]

DISLOCATION OF THE PATELLA.

SIR,—It would be interesting to know what dislocation really is, if one is to understand what is meant by Mr. Tweedley in the *VETERINARY JOURNAL*. No one can read the article without giving him credit for its bold contradiction of what every one can see for himself, or fail to admire its elegant diction ; but are we to disbelieve the evidence of our *post-mortem* examinations because M. Chuchu makes a theoretical calculation by which he proves

the impossibility of a thing with which most practitioners are too familiar? What veterinary surgeon of twelve months' experience has not seen or personally reduced the patella, or heard it cluck into its place?

I have seen many cart colts which at each step would throw out the patella in a visible manner, by inches of deviation, and heard it return at a distance of ten or twelve paces. I have been called to many cases in adults where the helpless limb has been hanging like a broken leg, and have replaced the patella by no greater display of science than pulling the limb forward with a side line; and, again, what student has not seen the trochlea of the femur worn away with friction in chronic cases? It would seem to be the custom now to accept without contradiction all the scientific but unpractical statements put forward by Continental writers, but I was not aware that M. Chuchu alone could obtain a proper knowledge of the anatomy of the stifle-joint. Mr. Tweedley says that to M. Chuchu belongs the merit of having "*abolished the error*"; but methinks that he has spoken too soon, and without reckoning the hosts of able practitioners who can diagnose an accident so comparatively common and easily seen and felt. Before English veterinarians are prepared to accept M. Chuchu's explanation they will have to see through his particular spectacles; as, from the following remarks, one would suppose he enjoyed an exclusive title to the term anatomist. Page 422, "M. Chuchu, inspired by his anatomical knowledge;" and again, p. 423, "M. Chuchu, enlightened by anatomy." Have we no anatomists? Does Professor Williams know nothing of the stifle-joint, and does not his illustration on p. 143 call to mind cases we have seen?

ALFRED MALLER.

Brighton, *December 7th*, 1885.

HONOURS IN THE ARMY VETERINARY DEPARTMENT.

SIR,—Some days ago I noticed in the *Gazette* that two Deputy Surgeons-General had been awarded C.B.s. I have no doubt they deserved them; but my reason for troubling you is to ascertain, if possible, when some of our men are to get that reward. Amongst the members of the sister profession there are many C.B.s and K.C.B.s, but in ours there is only a solitary one of the former.

The most prominent member of our profession, the present Principal Veterinary Surgeon to the Forces, has not the C.B., he being, I believe, the only head of a department who has not got it. Now, if ever a man deserved such a distinction he does. In his hands the Department has come through numerous campaigns and other arduous services with flying colours, being the only one, as far as I know, which has never broken down or been censured. By his literary works alone he has earned the distinction. His writings on Hydrophobia have earned him the gratitude of mankind. His services have been acknowledged on the Continent and England, as far as possible, and no doubt he regards the LL.D. he holds as an immeasurably higher reward than a C.B.; but it seems strange that a man so honoured elsewhere should not receive a decoration which has been awarded to subordinate members of a less successful department.

In mentioning Dr. Fleming, I merely name our best man; and it is our interest to insist upon his being duly honoured, not only for his sake, but for ours; for if he gets no rewards what chance have we of getting anything?

I consider that so long as his services are unrewarded by the Government our entire profession is slighted, and I for one would strongly recommend that we take the best means in our power to make it known that we feel the insult. He has stuck up for us; now let us see if we cannot stick up for him.

Yours truly, F.R.C.V.S.

SUBSCRIPTIONS TO MRS. BOWLES' FUND.

	£	s.	d.
Amount to October 16th	39	0	0
Mr. J. B. White	1	0	0
„ H. M. Stanley	1	0	0
„ John Bell, Clonmel	1	1	0
„ Wm. A. Hurrell	0	10	0
„ Alfred Over	0	10	0
„ J. S. Barber	0	10	0
„ Hy. Blunt	0	5	0
„ W. H. Blunt	0	5	0
„ W. Carless	0	10	0
„ J. R. Simpson	0	2	6
„ S. Revill	0	5	0
„ Kay Lees, India	0	10	6
„ C. W. Gregory, Tunbridge	0	10	0
	£45	19	0

Dec. 18th, 1885.

THOMAS GREAVES.

TO CORRESPONDENTS.

Several reports of societies' meetings, the introductory address at the opening of the Glasgow Veterinary College, and various communications, are pressed out of this number, and will appear in our next.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from W. Penhale, Barnstaple; Professor Penberthy, London; E. Stanley, Sydney, N.S.W.; G. Kinnell, St. Austell; J. F. Oliver, London; R. W. Burke, Cawnpore; J. Donald, Carlisle; J. D. Allman, London; A. Maller, Brighton; R. Dyer, Limerick; J. Nunn, A.V.D., Lahore; Professor T. H. Lewis, Edinburgh; F. Smith, A.V.D., Netley; E. Beddard, Wolverhampton; H. Kidd, Hungerford; A. Green, Dudley; T. Greaves, Manchester; Professor McCall, Glasgow; "F.R.C.V.S."; A. Broad, London; A. W. Hill, London; C. Gresty, Newcastle-on-Tyne; J. J. Meyrick, A.V.D., London.

BOOKS AND PAMPHLETS: First Annual Report of the State Veterinary Surgeon of the State of Iowa; *Ch. Cornevin*, Rouget du Porc; *Encyklopädie der Gesammten Thierheilkunde und Thiersucht*; *J. G. Wood*, Horse and Man; *Bulletin et Mémoires de la Société Centrale de Méd. Vétérinaire*; New South Wales Annual Report, Stock and Brands Department; Proceedings of the Third General Meeting of the National Veterinary Association; Transactions of the Pathological Society of London; *S. Rivolta*, Il Virus Moccioso Puro e la sua Importanza Diagnostica.

JOURNALS, ETC.: *Journal of the National Agricultural Society of Victoria*; *Revista Popular de la Exposicion Rural Internacional*; *Tidskrift für Veterinär-Medicin*; *Der Thierarzt*; *Echo Vétérinaire*; *American Veterinary Review*; *Quarterly Journal of Veterinary Science in India*; *Wochenschrift für Thierheilkunde und Viehzucht*; *Annales de Méd. Vétérinaire*; *Lancet*; *Live Stock Journal*; *Edinburgh Medical Journal*; *American Live Stock Journal*; *London Medical Record*; *Bladen Nitgegeven door de V. tot Bevordering van Veeartsenijkunde in Nederlandsch Indië*; *Revue Vétérinaire*; *Journal de Méd. Vétérinaire*; *Archiv für Wissenschaftliche und Praktische Thierheilkunde*; *Centralblatt für Veterinarwissenschaften*; *Mark Lane Express*; *Repertorium für Thierheilkunde*; *Animalia*; *Clinica Veterinaria*.

NEWSPAPERS: *Scotsman*; *Newark Advertiser*; *York Herald*; *Glasgow Citizen*; *Standard*; *Birmingham Daily Post*.

THE VETERINARY JOURNAL

AND

Annals of Comparative Pathology.

FEBRUARY, 1886.

TORSION OF THE UTERUS IN THE COW.

BY C. CUNNINGHAM, M.R.C.V.S., SLATEFORD.

Now that the parturition season is approaching, this not-too-pleasant state of matters may ere long fall for treatment to the lot of some reader. The following four cases—two bad and two good—may not be out of place.

Torsion of the uterus, with its twisting or screwing of the vagina near the os uteri, appears to be of comparatively rare and irregular occurrence. Some practitioners of long standing and extensive practice have not met with it—within two-and-a-half miles of my own door, I have had to face these cases during the last dozen years.

Case I (March 16th—20th, 1873).—A three-year-old quey; cross, Ayrshire—not unlike a Guernsey; of average height, slender, in good condition. Monday.—Been trying to calve for a few hours; pains rather severe, straining considerably; examination shows the quey not prepared for calving; little relaxation or softening of the parts, but in the vagina, close to the os uteri, two spiral coils and three or four folds or ridges, through which, with care and time and gentle dealing, the hand can be made to pass, and beyond which the os uteri can be felt constricted and closed. Somehow I did not think that this was a real and true case of torsion. The coils and folds, though distinctly spiral or “corkscrew” in direction, appeared shallow. I had hope that as the parts relaxed and true labour-pains came on, these coils would wholly or partly disappear. Gave the cow a moderate dose of linseed oil and an ounce or so of laudanum; raised her a little behind; she quieted down. Tuesday.—Better; not straining; parts softer; more room; posterior twist or coil seems obliterated; os uteri has a better feel. Wednesday.—Still improving; a little

manipulation *all but* dissipates the inner, or rather anterior or front coil ; the mouth of the womb dilated about two inches, and through it the finger feels a nose and the tips of two feet, with the membranes intact. Thinking only a little more time and care was needed, I did not see the quey till evening ; found my instructions disregarded—she had got loose ; been roaming all over the byre ; straining and heaving all day, and was now unable to rise. In no enviable mood, I examined the poor beast, and found I could scarcely get my hand to enter ; parts hot and dry, and very little room. Instead of going straight, the hand was forced to the off side, and far in, through some sort of a hole, projected, almost at right angles, a small foot and a few inches of a leg, and for long I could make out nothing farther. The result of three hours' work, in almost every position, was that this fore-leg stood out from the vulva to the pastern, while, two inches in the passage, was the swollen nose of a big, swollen head ; and further progress in or out I could not. In mercy to the animal, we waited till next morning ; removed the bones of the head, got up the other fore-leg ; but decomposition was far advanced, and, despite every care and means, the calf parted far back in the loins. We got the fore, but the hind-quarters we did not try to recover. The quey was sinking fast, all hope of a good result gone. She was slaughtered, and as the big, swollen, emphysematous hind parts of the foetus—a foot and more across the back—were compared with the narrow pelvic outlet of the mother, one could scarcely feel surprise at the result. I leave, however, those who have felt to realise the pleasant feelings and sensations and nice self-examining questions to which such a case and such an ending give rise.

Case II. (March 5th and 6th, 1878).—Also a quey, three years old. Cross, nearly Shorthorn ; big, strong, roomy, fat. Seven at night ; the quey been trying to calve during the day. Twist in the vagina plain and unmistakable. The hand goes in for a foot or so, and is stopped. The passage seems short and ended, or strangely drawn together. Gently forcing your way in, your hand is guided to the off or right side, your fingers go slightly outwards and turn downwards, and forwards, and inwards through a soft, yielding opening, and as the hand passes through, it receives, lastly, a gentle outward and upward tendency ; and as you straighten your arm to its original position, you find that you have gone through a corkscrew twist that now grasps and encircles your wrist, while underneath and in front of your hand is the calf and its membranes. Such was the feeling, so far as I can describe it, I experienced in my examination. Torsion to the right, one corkscrew turn.

In attempting delivery, I thought if I could secure the calf and

get part of it through the twist, the torsion of the uterus might be overcome. I ruptured the membranes, the quey being fully prepared, passed cords and secured fore-feet and lower jaw, and for hours tried my best to get the calf away, but failed. Hind-quarters raised a couple of feet; down first on one side, then on the other, then on her back, etc., etc., but did not roll her over and over. I could get one leg to the knee, and even the other to the pastern, or the head by itself, through the twist; but to get the head and legs to come together, or the one after the other, I could not.

An attempted study of Dr. Fleming's "Obstetrics" in the small hours of the morning was not a success. Something I saw and knew of "rotation" and "turning the cow," but it appeared a "Continental notion," "not much in it." Resolved to try again next day, and the result was failure. Two veterinary friends saw the quey in the afternoon—good cow-calvers both, not easily daunted—but they simply shook their heads. Out of this quey they see no way to get that calf. The animal is slaughtered, the udder skinned, removed, the symphysis pubis chipped through, the legs spread apart—the twist is plainly seen. I cut round the vulva, detached the vagina from its bony attachments, passed my hand into the vulva. One complete turn of the passage round my wrist dissipated the twist; another, the reverse way, reformed it. I could make or undo the twist at pleasure. The passage now is open to the calf, and one thinks that even yet the cow might be calved, only, unfortunately, she is past that, and the calf does smell.

Some one, like myself, may go home from such a case and settle to a quiet study of the "Obstetrics," and read that the "existence of torsion of the uterus may be said to be of recent discovery" (page 283); that many Continental, and one or two British, veterinarians have met with and described it (284-6); may see on page 299, Fig. 73, A, B, C, the positions of his hand, and on page 300, a very fair—though on a smaller scale, in an opposite direction, and not so good as the real—representation of his *post-mortem* examination. He may read of "Abdominal and Vaginal Taxis," "Hysterotomy," "Denoc'" and "Darreau's Procedure," and, lastly, and best, of "Rotation of the Cow's Body"; of how "German, French, Belgian, and Italian veterinary obstetrists have practised this method in a large number of instances, with most gratifying results"; and how "Mr. Cartwright, in England, has been successful in two cases." And reading and understanding, he may, like myself also, screw his face in vexation, and vow, if he again comes across a case of torsion, that he will lie down behind the cow, fix his hand in the twist, and roll her in a straw-shed for half-a-mile or half-an-hour.

Case III. (July 26th, 1883).—Ten o'clock on a summer night.

A rather large, good-looking foreign cow, four or five years old, in very good condition ; been pained and heaving the greater part of the day. Half a turn in the vagina, also to the right, which every pain and heave converts into a very firm, almost impenetrable corkscrew twist, effectually blocking access or egress, especially if the cow is down. Ten at night, and only the owner at hand. Deferred the rolling process till the morning. Gave $\frac{3}{4}$ lb. of Epsom salts, ginger, etc., and four or five croton beans. Next morning, 9 a.m., cow much about the same, but the good effects of the physic very marked ; bowels operating nicely ; stomach decreased in size, contents fluid ; the muscles generally, and especially of the haunches, soft and flaccid ; twist still present, but participating in the general relaxation. I had hopes of delivery without rolling. Secured the off fore-pastern of the calf and lower jaw with cords, and was making, apparently, not unsatisfactory progress through the twist, when the cow gave a struggle, got down, and sprang up again. I held on to the calf, when suddenly something gave way. There was, as it were, a lurch or dip of the calf within the cow, and, to my surprise, the calf, which had been coming with the top of its head to the cow's sacrum, now lay on its back, with its withers to the udder and its feet to the vertebræ. *But the twist was gone.* An awkward position, but a free passage now in the cow. We had still command of the off fore-leg and head. Slowly these were pulled to the near side of the mother, my hand assisting inside, and gradually the calf upturned to its proper position. We recovered the near fore-leg, calved the cow—a dead calf, but a living mother, that did well.

Case IV. (January 3rd, 1886).—On Sunday night, the first of the present month, about eight o'clock, a young farmer rode down, asking me to see a cow which had been trying hard to calve from the Saturday afternoon. I gave the young fellow a word of remonstrance and advice, but went to his place. A big, well-made, aged cow—Irish, probably—with an udder about the size of a small sheep ; paddling about and heaving ; very dull and stupid ; not unlike a “Milk-Fever” case, but with torsion to the right of the uterus only too well and plainly felt. The hand goes in—is directed to the off or right side—the floor of the passage becomes flat and broad ; at the seeming end there is, as it were, a thick cord stretched across, over which the fingers fall, and, taking a sort of corkscrew turn, find the membranes and foetus on the off side. Ten on a winter's night ; only two men—fall back on $\frac{3}{4}$ lb. Epsom salts, ginger, and sulphur, two or three glasses of spirits, and about 8 oz. linseed oil. 9 a.m. next morning : cow seemingly worse—been very ill about two, and at five ; trying hard to calve. Twist more confirmed—all efforts to get through as the cow lies are vain. Good effects from the

physic. Stomach decreased in size; contents fluid; animal in a much better state for rolling than the previous night. I explained to the owner the state of matters, telling him that I would try what I called the "French" system of "rolling," and if that failed, that he should kill the cow; as to attempt to calve her with the twist would be foolish and cruel. I looked round for a place on which to roll the cow. We were fortunate. The byre was a long and new one, half empty—a nice level seven-feet concrete floor behind the cows, and some nice short barley-chaff for bedding at hand. We cleared the space, covered it with a few inches of chaff, and our rolling platform was ready. Pushing, or rather dragging, the cow to it, she sprang to her feet and stood; but examination showed no change in the twist.

Taking up a soft plough-rein, I divided it; this gave two nice ropes, each four yards long. Laying these side by side, I knotted them together by two simple knots one and a-half yards from each end. This gave a short double portion, eighteen inches or so, in the centre, which I laid on the cow's back, and four ends or tails, each one and a-half yard long, for the legs. Telling a man to pick up the near fore-leg, I secured it with one of the ends by a double hitch at the pastern; the off fore-leg was then gently drawn from under her, and secured with another end of the rope, the cow falling on the chaff, on her knees. She then lay down naturally, on the off side; the hind-feet were searched for, the hocks flexed, and the pasterns secured by the two remaining ropes. The cow now lay with her knees and hocks flexed, each leg bound to its respective side and to the back. She was as like a barrel as we could make her; the "rolling" of her was a very simple process.

The torsion was to the right or off side. I decided to roll the cow from the right to the left, *i.e.*, from the off to the near side. Placing a man at the cow's head, two at the withers, and two good ones at the haunch and tail, over went the cow from the off side, across her belly, to the near; over then from the near, across her back, to the off again. She had had one complete turn. I examined her anxiously for the result, and found the twist far worse than before. Another turn on the screw—no passage through now, and entrance only for a very short way into the twist. Plainly, the wrong way to turn.

Kneeling down now, I fixed my hand as far in the twist as I could, told the men to come round and reverse the process; released the near hind-leg from its rope, gave it and the udder in charge to one of the men. Over from the off side, across her back, to the near went the cow.—Feeling inside better. Over from the near, across her belly, to the off. Twist much as at first—rather better. Over from the off, across her back, to the near—decidedly

better. Over from the near, across her belly, to the off—twist going. Over from the off, across her back, to the near side. We had got to the end of the byre, we could get no further; but we had got far enough—*the twist had gone*. The cow which, a few yards up that byre, had within her the worst torsion and twist of all the four cases, now lay before us a plain, simple case, plenty of room, os uteri dilated two or three inches, membranes unbroken. We returned a very hearty vote of thanks to Dr. Fleming and his Continental friends on the spot, and in Scotch New Year fashion did not forget them.

We left the cow with her feet tied, lying naturally where she was; but we noted the change on her. From a dull, spiritless beast she brightened up, took some water, and, in a short time, a little hay. True labour-pains shortly came on. An hour afterwards, the os was dilating nicely: a heave ruptured the membranes, the waters escaped, liquor amnii, sediment, etc.—a regular flood, as old cows have. Another hour, the second bag (allantois) almost intact; the cow rolled over; we released her feet, and she walked staggeringly to her stall. Another hour gave us the relaxation of the parts we wished; with gentle traction, a full-sized bull-calf, apparently dead, but which soon gave signs of life; and mother and calf need only a little attention and care—they do well.

Remarks.—*Case I.* shows the good and the bad effects of waiting. In some instances, it cannot be doubted, there are spurious coils and ridges, which sometimes disappear as parturition advances; but my sympathy is with the man (and his patient) who, with parts hot and dry and narrow, and calf strong-smelling and swollen, has even the semblance of a twist with which to contend.

Case II. shows how vain and futile were the attempts, even in a “roomy” cow, to extract the fœtus through the twist. This case resembles very much *Case IV.*, and the same treatment would, I believe, have given as good a result.

Case III. shows the good effect of a moderate dose of physic. How can the uterus or its contents turn, if the rumen is filled with solid food? Also, that a partial twist may sometimes, by taxis or otherwise, be dissipated without rolling.

Case IV. shows the superiority of the “rotation of the cow’s body.”

Cases I. and II. were hard work, pain, and death. *Case III.* was work and some success. *Case IV.* was little work, some manœuvring, a rather weary waiting, but a pleasant finish.

To those who have long known and practised the “rolling” system, these cases offer nothing new; such may smile at the errors of the first two cases, and, perhaps, be pleased with the success of the two last. But to young practitioners, and even to

elderly veterinary surgeons who may not have had, but who soon may have, experience of such cases, I would simply say, so far as my experience goes : When called to a case in which torsion is really present, do not waste time and exhaust yourself and your patient by strong, and almost certainly vain, attempts to deliver through the twist, and then take to rolling as a last resource. Leave membranes as they are—give laxative if needed. *Make up your mind to turn first.* Nothing is simpler, nothing easier. A concrete floor and chaff in my case did well ; failing that, a straw shed, a barn floor, a gravel walk, a grass field, or even a turnpike road, should do—any place firm and level. Cast and tie in the way described, or in some better way. Do not cast with hobbles. Flex hocks and knees, and keep each leg to its own side—do not cross. Give all freedom to the abdomen ; keep the ropes on the ribs, not in the flank. Fix your hand in the twist, and assist in dissipating it. Do not puzzle as to how to roll—*roll as best for your case.* Turn well ; not the fore-quarters first and the hind after them,—roll all at once ; keep the head down ; give a regular brewer's-barrel roll—slowly, deliberately, effectually. I do not say success will follow ; I only give the result of my last case.

The slight experience I have had corroborates what is stated by Dr. Fleming (on page 312, at foot) as to Saint Cyr's conclusions. All my cases were torsion to the right. Case IV. I rolled from right to left, and made the twist worse. "In torsion to the right, roll from left to right," or from near to off side. Why ?

Given a bag with a cheese in one end and a ham in the other, and a twist in the centre of the bag. That twist may be got rid of by keeping the cheese stationary and turning the other end with the ham, or by fixing the ham and rotating the cheese. But in a case of torsion of the uterus it appears to me that we have no choice—the calf objects. At every attempt to force calf and uterus back to their true position by rolling contrary to the twist, the gravid uterus hangs back, and every turn of the cow adds to the screw. But reverse the process. Keep the twist stationary with the hand, roll the cow to the twist, and slowly the cow herself undoes its folds—the passage is cleared, the calf is at its mother's and the attendant's pleasure.

One practical remark—"Delay is sometimes dangerous ;" at other times it is "better to make haste slowly." A quick delivery may mean death to mother or offspring, or, at least, tardy recovery. The weary waiting and cautious working and success of the human obstetrice are proverbial. Might not veterinary practitioners learn a little ? After reducing a case of torsion, do not hurry ; with returning strength may come returning labour-pains, relaxation, and life to cow and calf.

In closing, I would most heartily and sincerely express my thanks to Dr. Fleming and his work—"Veterinary Obstetrics." To all interested, I would advise a careful and earnest perusal in the full investigation of the subject. From that work, and from it alone, I learned the principle of rotation, though, unfortunately, I forgot the details; and, though as a drop in the bucket, it may gratify Dr. Fleming to know that his work has saved one man's cow and her calf—saved the mother much pain, and one veterinary practitioner much worry and vexation, converting what was a weary, dismal piece of work into a pleasure and a source of gratification.

CARBONIC ACID IN THE AIR OF STABLES.

BY FRED SMITH, ARMY VETERINARY SURGEON.

IN the paper I read before the Central Veterinary Medical Society on "Air and its Relations to Health and Disease," I dwelt on the importance of the determination of carbonic acid in stable air as an indication of the organic purity of the atmosphere. I did not in this communication mention any special difficulty I had encountered in determining this gas, as my experiments were not at that time complete. Since then I have been enabled to overcome this difficulty, and the subject of the present communication is to place before the profession a knowledge of it, which is quite new to science, how it may be overcome, and to record other observations on stable air of practical importance, especially with regard to ventilation.

To state the case briefly, my difficulty was this: after making many analyses of stable air, I could not make up my mind that the carbonic acid found represented *the whole* of the organic impurity which was present in the stable. The labours of Parkes and De Chaumont proved that a constant proportion existed between organic impurity of rooms and the carbonic acid of such rooms; analyses of stable air did not give identical results.

The question then resolved itself into two points; either my analyses were incorrect from defective manipulation, or else something was present in the air of stables which was absent from that of human habitations, and which partly destroyed this indication of organic purity of half its value.

By repeating my analyses scores of times, I entirely eliminated any error which might have arisen from defective manipulation, but still the results did not accord. I was therefore compelled to fall back upon my second supposition, viz., that there was something in the stable air which acted in such a manner as to make the carbonic acid appear less than it should be. By this time I felt convinced that this something was *ammonia*.

We know that when urea decomposes, it breaks up, among other substances, into ammonium carbonate, and that the gas from this salt is always present in stable air. I thought at first that the ammonia neutralised the CO_2 , but what I afterwards found took place was this: the ammonia so acted on the baryta water (into which the air is introduced to determine the CO_2) as to increase its alkalinity (the effect of CO_2 being to decrease it). In other words, the ammonia was present to such a great extent as to reduce the affinity for barium which carbonic acid possesses, and thus the full amount of this gas was not obtainable on analysis.

These results were only obtainable after laborious analyses, and some of these I propose detailing.

Experiment I.—A stable capable of holding eight horses, with ample means for ventilation by doors, windows, and ridge in roof, was selected for the purpose of experiment. The windows were closed, one door only left open, and the stable contained its full number of occupants. Air was collected one foot from the ground, at the bottom, middle, and top of this stable; the following were the results:—

At the bottom of the stable the $\text{CO}_2 = \cdot 7322$ per 1,000 vols. of air.

„ middle	„	„	= $\cdot 11542$	„	„
„ top	„	„	= $\cdot 7851$	„	„

All doors and windows were now opened, and the air examined fifteen minutes later.

At the bottom of the stable the $\text{CO}_2 = \cdot 5869$ per 1,000 vols. of air.

„ middle	„	„	= $\cdot 7091$	„	„
„ top	„	„	= $\cdot 5691$	„	„

In another stable examined in a similar manner, but of which the doors and windows had been opened all the morning, and no horse had occupied it for two hours, I found on the floor of the stall, opposite to the open windows, $\cdot 5888$ vols. CO_2 per 1000. *Four feet above this I found $\cdot 7931$.* This latter experiment gave me the cue to another method of investigation, as there was evidently a considerable difference between the layer of air close to the ground and that a few feet above it.

Experiment II.—The stable as described above was used for this experiment, the windows of which had been closed for twenty-four hours, and one door only open, and this but partly:

Air collected 1 ft. from the ground at bottom of stable = $\cdot 6040$ CO_2 per 1,000.

„ 6 ft.	„	„	„	= $\cdot 9064$	„	„
„ 1 ft.	„	„	middle	= $\cdot 6680$	„	„
„ 6 ft.	„	„	„	= $\cdot 8463$	„	„
„ 1 ft.	„	„	top	= $\cdot 4897$	„	„
„ 6 ft.	„	„	„	= $1\cdot 2712$	„	„

The air at the top of the stable was taken close to, but behind, the only door which was open, yet the air shows great impurity.

All the windows and doors were now opened, and the air examined half-an-hour afterwards :—

Air 1 ft. from the ground at the bottom of the stable = .4533 CO ₂ per 1,000.					
„ 6 ft.	„	„	„	= .6322	„ „
„ 1 ft.	„	„	middle	= .4688	„ „
„ 6 ft.	„	„	„	= .4252	„ „
„ 1 ft.	„	„	top	= .3822	„ „
„ 6 ft.	„	„	„	= .4862	„ „

All the airs collected six feet above the ground were opposite to open windows, and about eight feet distant from them.

The external air during the above experiments = .3966 CO₂ per 1,000.

In all the above experiments there is *only one exception* to the rule—that the air one foot from the ground is apparently more pure than that six feet above it.

To ensure accuracy the experiment was repeated.

Experiment III.—The external air on the ground = .3429, and six feet above .3118 CO₂ per 1,000 :—

Air 1 ft. from the ground at the bottom of the stable = .4271 CO ₂ per 1,000.					
„ 6 ft.	„	„	„	= .8771	„ „
„ 1 ft.	„	„	middle	= .5234	„ „
„ 6 ft.	„	„	„	= .9793	„ „
„ 1 ft.	„	„	top	= .4687	„ „
„ 6 ft.	„	„	„	= 1.0197	„ „

All doors and windows opened; air examined again in thirty-five minutes :—

Air 1 ft. from the ground at bottom of stable = .3750 CO ₂ per 1,000 vols.					
„ 6 ft.	„	„	„	= .5096	„ „
„ 1 ft.	„	„	middle	= .4232	„ „
„ 6 ft.	„	„	„	= .5898	„ „
„ 1 ft.	„	„	top	= .4039	„ „
„ 6 ft.	„	„	„	= .5691	„ „

Experiment IV.—Experiment again repeated under identical conditions. The external air on the ground = .3934, and six feet above it .3875 CO₂ per 1,000 vols. :—

Air 1 ft. from the ground at bottom of stable = .6363 CO ₂ per 1,000 vols.					
„ 6 ft.	„	„	„	= .8706	„ „
„ 1 ft.	„	„	middle	= .7647	„ „
„ 6 ft.	„	„	„	= .6603	„ „
„ 1 ft.	„	„	top	= .4957	„ „
„ 6 ft.	„	„	„	= .9558	„ „

All windows and doors were now opened, and the air examined again in half-an-hour :—

Air 1 ft. from the ground at bottom of stable =					·5785	CO ₂ per 1,000 vols.	
„ 6 ft.	„	„	„	„	=	·6707	„ „
„ 1 ft.	„	„	middle	„	=	·5980	„ „
„ 6 ft.	„	„	„	„	=	·6012	„ „
„ 1 ft.	„	„	top	„	=	·6328	„ „
„ 6 ft.	„	„	„	„	=	·7827	„ „

There is only one exception in the above experiment to the general rule.

Experiment V.—Another stable was now selected for experiment. It had a closed roof, and only one window was open; the bedding, strongly ammoniacal, was in the stall, and two horses had occupied the place for thirty-four hours, one being removed to admit of room for the experiment.

The CO₂ of external air = ·3672 per 1,000 vols. one foot above, and ·4904 seven feet above the ground. It was taken close to a wall, and near some trees, which may account for the larger amount above the ground.

The air taken eighteen inches above the stable floor, on which had been placed some ammoniacal litter = 1·2983, 1·0952, and 1·1080 CO₂ per 1,000 vols.

At a height of eight feet above this the air gave 1·4644, 1·3207, and 1·4122 CO₂ per 1,000 vols.

At a height of twelve feet four inches the air gave 1·3623, 1·7530, and 1·7937 CO₂ per 1,000 vols.

The increasing impurity as we leave the ground is very marked; but it must be remembered that there was no outlet in this roof, and the only window open had been closed.

Experiment VI.—The above experiment was repeated in another stable, ventilated by means of a ridge. The CO₂ of external air = ·3304 per 1,000 vols.

Air taken at a height of eighteen inches from the stable ground = ·5513, ·5665, ·5955 CO₂ per 1,000 vols.

At 7 ft. 4 in. above the ground it = ·7301, ·7082, ·6970 CO₂ per 1,000 vols.
 „ 10 ft. 9 in. „ „ = ·6455, ·6450, ·6011 „ „

The important point to notice here is the increasing purity of the upper stratum of air.

Is this constant difference between the amounts of CO₂ on the ground and six feet above it due to the stable ammonia?

Experiment VII.—The following experiments were made:—Air on the ground gave 1·2983, 1·0952, 1·1080 CO₂ per 1,000 vols. After sprinkling the place with ammonia it gave ·8141, ·7358, ·9852 CO₂ per 1,000 vols. Unfortunately, this experiment was spoiled by the door being opened between the two collections.

Experiment VIII.—This experiment was carried out to prove the ammonia theory. Air was collected at a height of twelve inches

from the ground. It gave as follows :—·4885, ·4671, ·4134, ·4406, ·4146, ·4375 CO₂ per 1,000 vols.

The ground was now sprinkled with a solution of caustic ammonia. The vapour arising was at times much stronger than is found in most stables, but it rapidly became diluted, and was quite imperceptible unless renewed. The air was collected in exactly the same place, and at the same height as before, and the CO₂ was = ·0791, ·2438, ·1926, ·0174, ·2063, ·0368 per 1,000 vols.

Experiment IX.—The experiment was again repeated, carbonate of ammonia, instead of the caustic, being used.

The mean of three analyses of the air = ·3428 CO₂ per 1,000 vols. Some of the powdered salt was placed on the ground; the smell of ammonia was now marked, and the mean of three analyses showed the CO₂ to = ·2632 per 1,000 vols.

The results of this analytical work may thus be summarised :—

1. In a stable where ridge ventilation, or an outlet in the roof exists, the upper stratum of air is the purest; the stratum next the ground is very impure, though, owing to the presence of ammonia, this is not apparent. In collecting, therefore, stable air in future for analytical purposes, it should never be taken nearer than six feet from the ground. In stables where no outlet exists in the roof the upper stratum of air is the most impure.

2. The amount of carbonic acid in different parts of the same stable is not the same. Selecting those specimens, from the tables given, collected six feet above the ground, we find :—

		BOTTOM.		MIDDLE.		TOP.
Experiment II.	{ <i>a</i>	·9064	...	·8463	...	1·2712
	{ <i>b</i>	·6322	...	·4252	...	·4862
Experiment III.	{ <i>a</i>	·8771	...	·9793	...	1·0197
	{ <i>b</i>	·5069	...	·5898	...	·5691
Experiment IV.	{ <i>a</i>	·8706	...	·6603	...	·9558
	{ <i>b</i>	·6707	...	·6012	...	·7827

Opposite to the letter *a* are the amounts found before ventilation, and opposite *b* the amounts after all windows and doors were opened.

A glance at the table will show what I mean; sometimes the middle and sometimes the bottom of the stable was the least impure, but the top of the stable, although close to the only door, which was open, was invariably the most impure. Here then, undoubtedly, we had some local condition affecting the results, and at this place were two drains, the only two which existed in the stable.

Opposite the line (*b*) it will be observed that sometimes one-half, sometimes two-thirds, of the carbonic acid has been removed by half-an-hour's free ventilation. Moreover, the amounts found

correspond very closely with those I have laid down as being the admissible limit of CO_2 in pure stable air, viz., .6 per 1,000.* These results are very important, for from this data can be calculated *the amount of air supplied*. In the case of the occupants of this stable they were receiving 37,500 cubic feet per hour per head. This point I must defer until a future paper on ventilation.

3. Experiments VII., VIII., IX. proved clearly the influence of ammonia in the air on the determination of CO_2 . These show that if ammonia is present in any appreciable amount, the results of the carbonic acid analysis by baryta water are unreliable if made close to the ground. It must be clearly understood that *the ammonia does not render the air more pure by removing a part of the CO_2* , but what it really does is to affect the sensitiveness of the baryta water in which the air is collected, and make it *appear* to be purer than it really is. This is a fact which has hitherto never been recognised. To avoid the fallacy arising from it the air must be collected at least six feet above the ground.

GLANDERS IN MAN: RECOVERY.

BY F. RAYMOND, F.R.C.V.S., ARMY VETERINARY DEPARTMENT, WOOLWICH.

DURING the hot weather of 1884, while making a periodical inspection of the horses of Battery F 2, Royal Artillery, at Nusseerabad, India, I discovered an outbreak of Glanders. I remained there two months, during which time eight horses were destroyed, suffering from all the symptoms of acute Glanders, and *post-mortem* examination in each case confirmed my diagnosis. When the outbreak was apparently stamped out I returned to my headquarters, and soon after was moved to another district.

After my removal, a fresh case occurred. This animal, the last attacked, was inspected by a board of three veterinary officers, declared to be glandered, and destroyed.

I have lately met one of the medical officers who was in charge of the hospital at Nusseerabad—Surgeon O'Flanagan, M.S., who told me the following:—

During the prevalence of Glanders in the battery, in 1884, two cases came under my notice. The first, a private, reported himself as feeling ill and suffering from "lumps" in the neck. Upon examination I found that these were enlarged lymphatic glands. During the next few weeks, almost all the superficial glands of the body became enlarged. About a week after the admission of

* Showing that in this building ample means existed for ventilation if only allowed to act.

the first case, a gunner, who had been employed to groom sick horses, reported himself as suffering from similar symptoms, which ran a similar course. Later on a muco-purulent discharge occurred from the nostrils in both men, which were carefully examined. The mucous membrane was found intensely inflamed, and high up several ulcers were visible, but owing to their distance it was difficult to determine their exact character. The disease resembled neither Septicæmia, Tuberculosis, nor Syphilis, but in some respects was not unlike Lymphadenoma; but in the latter disease there is no ulceration of the membranes, nor discharge from the nostrils. A consultation of medical officers was held, and after most anxious consideration they reported the disease to the Surgeon-General, Bombay, as Glanders.

The men were in hospital eleven months in India, were then invalided home to the Herbert Hospital, Woolwich, from which they were discharged for duty about three months ago. The ulcers disappeared two months after admission at Nusseerabad, but the glands remained enlarged and very painful for a very long time.

The treatment adopted was as follows: The nostrils were syringed with solution of corrosive sublimate, 1-1,000. An inhaler was constantly worn (day and night), on the sponge of which 10 drops of equal parts of spirits of turpentine, creosote, tincture iodine, and oil of Eucalyptus were frequently dropped, the proportions of the mixture being constantly varied. Internally the men received 1 gr. of iodoform three times a day in a pill, for a fortnight at a time, varied with a fortnightly course of tonics, as syrup of iodide of iron. Most generous diet was given.

I regret my inability to give exact data, as I destroyed all papers relating to the outbreak, when I left India. Surgeon O'Flanagan has also been much moved about since then, but found the men at the Herbert Hospital when he came home.

Hitherto I have been thoroughly sceptical concerning recoveries from Glanders, but I think I have been able to prove, at any rate to my own satisfaction, that in this instance it really took place.

ON CERTAIN PATHOLOGICAL CONDITIONS MET WITH IN THE TESTICLES OF HORSES.

BY JAMES BRODIE GRESSWELL, M.R.C.V.S., LOUTH.

It is my purpose to describe, very shortly, some instances of diseased testicles in horses, as I believe that, although not of very uncommon occurrence, they may, nevertheless, prove of some interest to the readers of the VETERINARY JOURNAL.

On December 25th, the writer was summoned to make a *post-mortem* examination on a cart-horse, which had been attended by a local practitioner. On opening the abdomen, it was easily seen that the animal had died from an extensive rupture of the colon. In the inguinal region there was an immense tumour, about the size of a man's head. Being interested as to the exact pathological condition of this swollen testicle, I removed it, and examined the organ carefully. The skin covering it and all the tunics were firmly adherent to the gland, but after considerable trouble the testicle and the cord were dissected out. The whole mass weighed five pounds and six ounces; the testicle and cord alone weighed four pounds and three ounces. On cutting into the testicle, the true gland tissue was found to be replaced by firm fibrous tissue, interspersed with fat, and in the centre there was a cavity, of the size of a small orange, containing caseous matter, pus, and a number of well-developed strongyles, which I have no hesitation in pronouncing as specimens of *strongylus armatus*. Two of these are remarkably well developed, and the internal structure is seen to be of a bright-red hue.

Last summer I was called upon to castrate a colt, with its off-side testicle in a similar condition to the above. In this instance the gland weighed nineteen ounces and three drachms. The coverings of the testicle and the skin of the scrotum were likewise firmly adherent in this case. During the operation the hæmorrhage was considerable, and proceeded mainly from a large quantity of cellular tissue developed around the gland and the cord. The microscopical features of the two testicles revealed the same pathological fibrous and fatty degeneration. Although such *degeneration* is not uncommon in horses, I have never before met with a small colony of the armed strongyles in this situation.

NOTES ON THE BRITISH PHARMACOPŒIA, 1885.

BY "PHARMACON."

THE issue of a new pharmacopœia is a matter of great importance to prescribers of medicine, and we cannot too soon become acquainted with its various features, more especially in so far as they directly affect our daily therapeutics.

The new British Pharmacopœia came into force as soon as it was published, and we may reasonably expect that the wholesale chemists will now supply preparations according to it, unless specially ordered according to the 1867 edition.

On glancing over the preface, we first notice the discontinuance of the old chemical notation, and the adoption of the modern

system for representing the composition and constitution of chemical substances ; then, naturally following this, is the change of names of salts, as carbonates, nitrates, etc., which are now considered salts of the metals, potassium, sodium, etc., instead of salts of potash and soda, etc.

Next comes the change in names of the alkaloids, which have received the Latin termination of *ina*; thus, strychnia is now strychnina, and morphia, morphina. It may take some little time to become accustomed to these changes, but it is a step towards uniformity, and in accordance with Continental usage. Neutral principles are made to end in *inum*, as ergotinum.

In stating the relative quantities of ingredients, an attempt has been made to introduce a method of expressing the component ingredients in parts—both weights and proportional parts are given, thus :—

Acetic acid 1 pint, or 1 fluid part.
Distilled water 7 pints, or 7 fluid parts.

Wherever this method is employed, we are told “parts” signifies parts by weight, and “fluid parts” signifies the volume of an equal number of parts of water. The introduction of “parts” is evidently paving the way for substituting parts for weights in a future edition.

Temperature is still expressed in Fahrenheit’s degrees, but the centigrade equivalent is also added in brackets, and in a future edition we may expect to see the adoption of the centigrade scale, which is mostly used by scientists, and would be a source of greater uniformity.

There is a long list of alterations in names, but most of them are a necessity of the alteration in the nomenclature.

The clearer definition given to the degree of disintegration to which vegetable powders are to be reduced before they are submitted to the various pharmaceutical processes, is an important and welcome change. We are now ordered to reduce the drugs to the degree of fineness No. 20, 40, or 60, these numbers indicating the number of meshes in the linear inch of the sieve used.

Standardising drugs is, for the first time, introduced into this work, and the recognition of this principle is one of the leading features, and is one of the most distinct advances of the new pharmacopœia, as it enables the therapeutist to use potent remedies with greater exactitude. The drugs are assayed in order to ascertain the amount of their active principles, which must be up to a certain standard, and all preparations from these drugs have their alkaloidal strength stated, which can be estimated by processes given in the Pharmacopœia. The drugs directed to be standardised are cinchona, opium, nux vomica, and their preparations.

We now come to the text proper, and it is proposed to note the changes only so far as we think they may affect and interest the veterinary practitioner.

Acids.—In the list of acids we have none expunged, only two altered, and ten additions. The two that have undergone change of importance are sulphurous and aromatic sulphuric (or elixir of vitriol).

Acidum Sulphurosum is now made to contain only 5 per cent. of sulphurous anhydride; this will be a more stable preparation than the old and stronger acid.

Acidum Sulphuricum Aromaticum.—The preparation is changed, and the product is a paler and less aromatic preparation, but therapeutically it remains as before.

Of the acids now made officinal, the following are the only ones at all likely to interest veterinary surgeons:—

Acidum Boricum, known for its antiseptic properties.

Acidum Carbolicum Liquefactum.—This is crystallised carbolic acid, with 10 per cent. of water added. It is a handy and convenient preparation, and remains fluid at ordinary temperatures.

Acidum Chromicum (chromic anhydride) is a powerful caustic.

Acidum Hydrobromicum contains 10 per cent. of real hydrobromic acid.

Acidum Oleicum is a useful solvent for many medicinal substances, and is readily absorbed by the skin. It is, of course, necessary in the preparation of the oleates.

Acidum Phosphoricum Concentratum contains 47 per cent. of phosphoric anhydride.

Acidum Salicylicum, so extensively used as a febrifuge in human practice, and sometimes by veterinary surgeons, is now officinal.

Aloes.—Two new varieties of aloes (Curaco and Zanzibar) are recognised, and aloin is now officinal.

Alumen.—Both potash and ammonia alums are recognised instead of the ammonia alum in the last pharmacopœia.

Ammonii Chloridum (Sal ammoniac).—The granulated, as well as that in tough masses, is now recognised. The granulated is by far the most convenient in practice.

Argenti Nitras.—The fused nitrate of silver in sticks is now officinal, as *Argenti et Potassii nitras*, or mitigated caustic. It consists of nitrate of silver 1 part, fused with 2 parts of nitrate of potash. Toughened caustic is fused silver nitrate, containing 5 per cent. of KNO_3 .

Asafœtida.—The orthography of this has been changed, and it is now spelt with one “s” instead of two, as formerly.

Croton Chloral Hydras is now named Butyl-chloral Hydras.

Calx Sulphurata is a mixture of sulphate and sulphide of calcium, and should not contain less than 50 per cent. of sulphide. It is principally known as sulphide of lime (*Calcii sulphidum*), to which it owes its medicinal virtues. It is given in boils, suppurative and glandular affections, etc.

Cinchonas.—The alkaloids may be prepared from any of the cinchonas, but the galenical preparations are ordered to be made from the red bark, which is now standardised, and must yield 5 to 6 per cent. of alkaloids, not less than one-half of which shall consist of quinine and cinchonidine. This is the bark most suitable for general practice, and being standardised may be relied upon for uniformity.

The sulphates of cinchonidine and cinchonine are officinal.

Coca, and several preparations thereof, now find a place which will be noticed hereafter.

Decoctions and Plaisters claim no notice, as they are seldom or never used by veterinary surgeons.

We next come to an important and useful class of preparations—the *Extracts*—and in them we have changes and additions which demand our attention. To the thirty-seven extracts in the last British Pharmacopœia, ten new ones are added.

Of the previously officinal extracts the following have undergone alteration :—

Extractum Cinchonæ Liquidum is now made from the red bark, and standardised to contain 5 per cent. of alkaloids. One fluid ounce of this extract is equal to one ounce of bark.

Extractum Ergotæ Liquidum is same strength as formerly, but made by an improved process, said to produce a more reliable preparation. Ergotine has also been made officinal.

Extractum Nucis Vomiceæ.—This is the most important and satisfactory change of all the extracts. It is made by an improved process, and its alkaloidal strength must be 15 per cent. It will thus be a most powerful and reliable preparation in cases requiring nux vomica. It is very convenient to dispense in balls, and for all practical purposes 20 grains of extract may be considered equal to 3 grains of strychnine.

Extractum Belæ Liquidum.—One ounce of this extract is equal to one ounce of Bael fruit. It is a very valuable astringent, and too little known in veterinary practice.

Of the new extracts the following are all those likely to be employed :—*Belladonnæ alcoholicum*, *Cocæ liquidum*, and *Jaborandi*.

Extractum Belladonnæ Alcoholicum.—This is a new introduction, but the old green extract is still retained. The alcoholic extract is prepared from the *root*, and is stated to be five times as strong as

the green extract made from the leaves and young branches. It is important to bear this difference in mind in prescribing these preparations.

Three new solutions in glycerine are added, all likely to be useful in veterinary practice.

Glycerinum Aluminis is 1 in 5.

Glycerinum Plumbi Subacetatis is same strength as "Goulard's Extract," is said to keep better without depositing, and is preferable to *Liq. plumbi diacet.*

Glycerinum Tragacanthæ, one of the most useful excipients in the pharmacy for compounding balls, pills, etc. It will be found advantageous, in practice, to keep a thinner paste than the pharmacopœial preparation.

The *Infusions* have undergone some change, but as they are impracticable unless in the concentrated form, we pass them unnoticed.

Hypodermic Injections.—Two new ones are made officinal—Apomorphiæ and ergotin. Both are ordered to be freshly prepared as required for use. The strength of morphia injection is altered from 1 grain in 12 minims to 1 grain in 10 minims.

Iodiformum, and an ointment thereof, are officinal.

Liniments.—No change of practical importance.

Liquores.—Ten new solutions are added, and one omitted. The solutions of arsenic, morphine, strychnine, permanganate of potassium, and arsenite of soda, have been altered from 1 in 109 to 1 in 100, which is equal to about $4\frac{1}{3}$ grains in each fluid ounce, or 1 grain in 110 minims.

Liquor Iodi is a little stronger, and now contains 5 per cent. of iodine. This is a very useful preparation, stronger and cheaper than *Tinct. iodi*.

Liquor Ferri Perchloridi is equally efficacious, and less expensive than *Tinct. ferri perchl.*

The new liquors of importance are :—

Liquor Acidi Chromici is a solution containing 25 per cent. of chromic anhydride, or strength 1 in 4. Of this strength it is a powerful caustic, but of half this strength it is said to be "serviceable in the treatment of Grapes and Grease." (Gresswell.)

Liquor Ammonii Acetatis Fortior.—This strong solution of acetate of ammonia is the best and most convenient for veterinary use. When diluted with five parts of water it forms *Liq. ammon. acet.*

Donovan's Solution, or *Liquor arsenii et Hydrargyri iodidi*, is now officinal, and contains 45 grains each of iodide of arsenic and red iodide of mercury in 10 oz. of liquor.

Liquor Ferri Acetatis, and *Liq. Ferri Acet. Fort.* are officinal.

(To be continued.)

ACNE CONTAGIOSA IN THE HORSE, AND ITS ETIOLOGY.

BY PROF. W. DIECKERHOFF AND DR. P. GRAWIZ.

(*Virchow's "Archiv,"* vol. cii., p. 148.)

THE authors have been studying a skin disease in horses imported from England, particularly in well-bred animals, which has been called hitherto "Englische Pocken" (English Pox), but which they describe as Acne Contagiosa. The new nomenclature has been adopted to counteract a widely-spread idea that the disease is genuine Horse-pox. Concerning the diseases which may be mistaken for Acne Contagiosa, the following remarks are worthy of notice:—

1. The authors hold that it has not been proved that horses are subject to genuine Variola. Tenner was the first to conjecture that the connection between Stearrhœa (Grease) and Variola Vaccina was so close, that by inoculating a cow from a horse suffering from Grease, Cow-pox might be produced. Tenner's opinion led to the belief that Horse-pox was a special form of Grease. Many authors, such as Loy, Sacco, Viborg, take this view. Viborg, indeed, considered he had actually demonstrated the correctness of his assertion, by producing an eruption in cattle by inoculating them with the exudate of Grease.

Against this view the authors maintain that the mere occurrence of pustules, after an inoculation, is no proof of the identity of the disease produced with that from which the inoculate has been taken; but more probably the outbreak is a consequence of inflammation of the skin, as often results from the inoculation of virus.

2. Stomatitis Pustulosa Contagiosa (Eggeling and Ellenberger) differs from Acne Contagiosa, mainly by the course it runs.

3. A pustulous exanthema occasionally occurs in the neighbourhood of sloughing wounds. It spreads sometimes, but is benign in character.

4. A pustulous exanthema may occur from a high temperature in summer, which vanishes when cooler weather sets in.

5. Parts touched by harness in riding and draught horses sometimes show a number of small knots; these are furunculi.

Acne Contagiosa is an eruption of numerous groups of pustules, principally in parts covered by harness and their immediate neighbourhood. The reason why these localities are chiefly attacked lies in the mode of infection. The disease is generally conveyed by the harness of diseased horses. It is carried to

adjacent parts, by the brush and currycomb, from the original crop. In average cases an exanthematous eruption occurs two or three days after infection. A round or oval inflamed area is formed, the hair becomes rough and moist, the skin is tumefied, and in a few cases a somewhat sticky serous exudate is thrown out. If the skin be thin, suppuration may take place, in which case from one to twenty pustules are formed. After five to eight days these pustules dry up, and under the crusts granulations are found, which lead to cicatrisation. The skin between the pustules remains smooth. Should the pustules be very close, sphacelus of skin may occur, in which case the dead tissue is thrown off as a slough. As a rule, the parts heal completely in from ten to twenty days. Only rarely does the process involve the subcutis; when this occurs, Lymphangitis ensues, and runs its course in four to six weeks, terminating in cicatrisation.

The diameter of the parts affected varies, according to the number of pustules, from 2 to 8 cm. The complaint is entirely local; no constitutional disturbance is witnessed. The itching is slight, and only occurs during the healing process. Treatment is confined to the isolation of the diseased, and washing of the affected parts with Liq. alum. acet., or with a lotion composed of Plumb. acet., 2 parts; Alum. crud., 1 part; Aqua dist., 50 parts.

An average case, if properly treated, is cured in about four weeks; but it may last from eight to twelve, through fresh crops of exanthems growing from neglect of treatment.

The authors conclude, from the spread and course of the disease, that it is caused by a contagium; in fact, the examination of the scabs demonstrated the presence of numerous micro-organisms. Of these the pure cultivation was undertaken, which produced the characteristic exanthems when inoculated. A bacillus was identified as the *raison d'être*, and is being accurately studied. Horses, calves, sheep, rabbits, and guinea pigs are susceptible to the disease; house mice, and white and field mice, are proof against it when it is applied to the skin. For further details and diagrams of the bacillus, we must refer to the original communication.

Editorial.

A SHORT-SIGHTED POLICY.

THE Indian Government, in direct opposition to the Horse Guards and War Office, has determined to reduce the veterinary service in India by a comparatively large number of officers, and evidently at once. Anything more short-sighted or injurious to the best interests of that country can scarcely be conceived. The only charitable construction that can be put upon the decision arrived at, and which is being acted upon, is that the officials concerned in the transaction have lost their common sense and become possessed of a silly kind of *dementia*, of which they will be cured, perhaps, by a very severe revulsive treatment. India has been particularly unfortunate in its veterinary relations. No country in the world, we are certain, suffers more from the most serious animal diseases of every kind—Cattle-plague, Anthrax, Glanders, Rabies, Sheep-pox, Foot-and-Mouth Disease, among them—and it has been estimated that, at the least, animals of the value of six millions of pounds are lost annually from preventible maladies. Need we wonder that, from this one cause alone, this great country—the mainstay of which is agriculture—is every year becoming less wealthy and more harassed by taxes. If the British public only knew how affairs are managed in this respect, a change for the better would be quickly effected; but, unfortunately, such things do not reach the ears of our reformers, and crying evils demanding immediate redress are allowed to exist from year to year.

The rulers of India seem to be unable to learn anything from bitter experience. The terrible losses and horrible cruelties inflicted upon animals in Afghanistan, through the most culpable neglect or indifference in providing proper veterinary attendance, would, one might imagine, have taught people, even if only half-witted, the necessity for providing a sufficiency of veterinary officers to meet, at least, ordinary requirements. But no, such instruction is thrown away in that country of "Kismet"; and it will astonish our readers to know that for an expanse of territory not inferior in extent to Europe, infested by the most devastating horse and cattle diseases, there are fewer veterinary surgeons than are to be found in Lancashire, and that small number is now being made smaller. It may be that the authorities who control the veterinary arrangements in India imagine that they are effecting a saving in keeping the establishment of veterinary surgeons so low as to render it all but ineffective. If such is their idea, it only shows how purblind they are, and how incompetent they must be to govern such a country. If saving is to be really accomplished and India benefitted, a commencement should be made with those who draw enormous salaries, out of all proportion to the value of the work they do; and instead of reducing the veterinary staff—the most useful and hard-worked body of men in that country—it ought to be doubled or trebled. So badly treated and so cruelly overtaxed by hard work are the veterinary officers, that the only wonder is they serve in that country at all. Leave is impossible, and nothing

but a serious break-down in health, which is often permanent, will gain for them a respite. The amount of invaliding is very great, and those who come home look with the greatest dread to returning again to that unhealthy climate, where to be worked to the verge of death is the only prospect before them.

Should a war occur soon, a heavy catastrophe is inevitable, and the only thing that will avert the impending danger is a collapse in peace time. Such cannot be far off, and the sooner it comes the better for India. The only matter for regret then will be, that those who gave such pernicious counsel will escape the punishment they so richly merit.

Jobbery is far from being unknown in the land of rupees, and jobbery is generally successful in concealing such mishaps, especially when due to ignorance or gross mismanagement. As an instance of this, and of the way such things are managed there, it may be mentioned that an officer possessing no qualification whatever for the post, but having a friend at Court, is about to be pitchforked into the position of superintendent of horse-breeding operations—a situation demanding special technical knowledge and ability, and which has hitherto been held by a veterinary surgeon. If the whole business of veterinary service in India were not so momentous and grave with regard to the welfare of that vast region, and indirectly to the British Empire itself, we might be inclined to look upon it as a farce; as we consider it to be, as it always has been, a disgraceful failure. The subject is well worth the attention of Parliament, and sadly wants thorough investigation.

FOOT-AND-MOUTH DISEASE.

SOME interesting researches have recently been published on Foot-and-Mouth Disease, which considerably advance our knowledge of its etiology, and afford indications as to prophylactic treatment. The first report, in order of time, is Italian, and was published a few months ago in the *Clinica Veterinaria*, and is from the pen of a veterinary professor, Dr. Nosotti.

The initiative of the researches made on this disease belongs to the Agricultural Committee of Pavia, who, alarmed by the frequent outbreaks of that epizootic in Italy, had established a commission to study its progress and nature. Dr. Nosotti belonged to that commission, and reported the result of the investigations.

In a first report the commission had concluded that :

1st. The microscopic examination of the apthous liquid obtained directly from a vesicle still intact, brought out the discovery of epidermic cells, some blood corpuscles, and numerous microbes, similar to those already discovered by Professor Rivolta, which are alone the cause of the virulency of Foot-and-Mouth Disease, and which ought to be called *Micrococcus aphtosus*.

2nd. Cultures of this micro-organism have been made successfully.

3rd. A great extension ought to be given to the system of inoculation as already practised by many, from Buniva down to Rossignol.

4th. Subcutaneous inoculations, made either with pure virus or with virus diluted in the aqueous humour of the eye, have for their result to diminish the intensity of the disease.

These conclusions being presented, Dr. Nosotti states that the study of this *Micrococcus aphtosus* has been made by others and by himself, and that

these studies have proved that the virus of aphtha is cultivable, and probably can thus be attenuated in its effects.

While studying the nature of the virus, Dr. Nosotti made numerous experiments in inoculation, as above stated. These were all made under the skin of the dewlap, and they were followed by a benign attack of the disease, with the appearance of apthous vesicles preceded by slight fever. These vesicles appeared on the buccal mucous membrane, were smaller than in the ordinary form, and cicatrized generally by simple resorption; but when they ulcerated, the recovery began as soon as the membrane was ruptured. It was also observed that the skin of the region where the inoculation had been made, became the seat of an inflammation of a phlegmonous nature, which was soon covered by numerous little apthæ.

Six months later the same commission published a second report, describing the experiments of inoculation made in various localities. The virus then used was diluted in aqueous humour, and was pushed in the dewlap with a Pravaz syringe. It was hoped that by this process the affection would be localised in the region of the dewlap, and its development in its ordinary place of selection would be prevented. At first these results were obtained, but a few failures brought on a discussion between the members of the commission and Dr. Nosotti, and it is for this reason that the author published the report as merely the result of a few experiments made by himself; definitive results have not yet been reached.

In order to prosecute his investigation successfully, Dr. Nosotti took all the precautions possible, providing himself with the best instruments and familiarising himself with all that has been written on the subject of micro-organisms. He first learned that the existence of the microbe of epizootic aphtha had been discovered long ago, thus: Haidinger claimed that he had found in all the vesicles a kind of fungi which was the analogue of the fungi of rusty plants; Betti claims that this is the *Oidium albicans* or *Mucor albicanus* of the "thrush" of children or young calves; Bender found in the envelop of the apthæ small fungi, very small spores, and also numerous microbes; Bollinger found in these vesicles bacteridæ and bacilli; and Rivolta, more careful than the others, says that the apthous virus is composed of round microbes of very small size, the largest having a kind of central nucleus. All these observers, as Nosotti remarks, had examined impure vesicles, that is those mixed with detritus of all kinds, which soil the mouth, the udder, or the interdigital space, and therefore the number of parasites which they found was not to be counted; consequently, their researches could not be correct.

By avoiding their errors, Dr. Nosotti obtained the virus from recently-formed vesicles, and took it with a Pravaz syringe, previously carefully disinfected. The liquid obtained by this method was like serum, had a slightly citrine colour, was viscous, had an alkaline reaction, and a fresh, not unpleasant, *sui generis* odour. Left in a glass tube, it becomes transformed into a mass resembling coagulated albumin, and when the glass is agitated, the liquid disappears entirely.

Comparing it with the virus taken from an old vesicle, this is found to be of a dirty-white colour, cloudy, with an acid re-action, with a strong and disagreeable odour. It contains impurities and detritus, which collects at the bottom of the glass, and does not disappear when it is agitated.

Seen under a microscope, the pure liquid is found to be composed of epidermic cells, red corpuscles, white corpuscles, fat cells, protoplasmatic granulations, and numerous vibrios and *micrococci*, with well marked brownian motions.

In the old virus, besides all the above, Dr. Nosotti found numerous purulent cells, cellular organic detritus, rudimentary forms of *Bacterium termo* or bacillus of putrefaction.

In using colouring tests, such as fuschine, violet of gentian, etc., Dr. Nosotti observed that the morphological elements become more apparent, and that numerous microbes could be detected, which were those of epizootic aphtha. Their diameter is very small; at first sight they resemble those of Fowl-cholera, discovered by Pasteur, but they differ from them in some points, mentioned later on.

Perfectly round, strongly reflecting light in their centre, their outlines are well defined. They are generally single, seldom grouped by two, three or four, never in chapulet form. With very high power, by close observation the various steps of reproduction can be seen. Some of them have a kind of granulation, which becomes more and more apparent as it grows to the dimensions of the microbe from which it arises. This microbe with granulations then assumes an elongated shape; then between the granulations and the primitive microbe, a contraction or fissure occurs, and the body assumes the shape of figure 8, which is, in fact, two microbes united together by a thin membrane, which soon breaks up very readily by the simple motion of the fluid. These microbes are also seen in the epidermic cells and the leucocytes.

To be certain of the parasitic nature of these microbes, Dr. Nosotti treated them with acids, alkali, ether, and iodoform. But these agents, instead of causing their disappearance, intensified their appearance, though they seemed to have lost some of their energy. Mixed with the bacteridæ of putrefaction, they seem to experience no effect from them, and even their multiplication proceeds with scarcely any interference. They disappear only when the bacteridæ of putrefaction are very abundant.

Placed in proper media, the microbe of Foot-and-Mouth Disease multiplies prodigiously; its vitality is so tenacious that it multiplies also, though but slowly, when exposed to free atmospheric air.

In order to demonstrate that aphthous virus is truly the virulent agent of Foot-and-Mouth Disease, numerous cultures in appropriate liquids have been made in Italy, but principally on a large scale in the laboratory of Dr. Nosotti.

From the numerous observations he has made, he believes himself justified in affirming: *that the microbes observed first by Professor Rivolta, and better studied, and for the first time cultivated by himself, represent the true cause of epizootic aphtha, the essence and nature of the aphthous virus.*

To confirm the virulency of his cultivation, Dr. Nosotti has inoculated adult animals, and has succeeded in producing in them a benign aphthous fever.

After reporting a few experiments, probably too few to justify a thorough conclusion, Dr. Nosotti concludes his report by declaring:

1. That epizootic aphtha is not a disease susceptible of developing itself spontaneously. It is not an indigenous, but an exotic disease.
2. Its nature is eminently contagious.
3. Its virulent element is represented by microbes, discovered first by Rivolta.
4. The virus can be cultivated when placed in appropriate media; and by reducing its virulency by successive cultures, it may become a safe and proper agent of inoculation.

The next researches to notice, are recorded by Dr. Klein in *The Lancet* for January 2nd. He writes:

For some time past I have been engaged in an inquiry into the etiology of Foot-and-Mouth Disease carried out for the Medical Department of the Local Government Board, and I have ascertained that this disease is caused by a micrococcus, which I obtained by cultivating artificially the lymph taken from the vesicles of a sheep affected with this disease. This micrococcus is present in the lymph and in the tissue of the vesicles as dumb-bells and as

chains. It grows well in alkaline peptone and broth, in solidified blood serum, in solid agar-agar peptone broth mixture, in solid nutritive gelatine mixture (which is not liquefied by it), and in milk. Its mode of growth in solid media is so typical and characteristic that by the naked-eye inspection alone it can easily be detected. When any of the above solid media is inoculated with this micrococcus, after several days a thin limited film makes its appearance at and immediately around the point of inoculation; this film slowly spreads, but from the outset and afterwards presents a very characteristic appearance to the unaided eye, being in fact *a collection of closely-placed minute granules or droplets*. These gradually and slowly enlarge, and assume a whitish, translucent character. If the inoculation is made with the point of a needle or platinum wire, or of a capillary pipette, pushed into the solid medium, the channel of inoculation becomes, after several days to several weeks, marked as a linear aggregation of minute granules or droplets; in addition to this there is on the surface the above-mentioned film of granules starting from the point of inoculation. The growth of this micrococcus is extremely slow; in solid nutritive gelatine mixture, kept at temperatures from 18° to 22° C., the first traces of the growth in the shape of a small cluster of transparent granules visible under a lens are noticeable at the end of from five to eight days, or even later; in agar-agar mixture, kept at 35° to 38° C., it is of course sooner visible, but even after six or seven months, in all media and under all conditions, the growth remains of limited extent. Also in milk, kept at temperatures varying between 35° and 38° C., the progress of the growth is extremely slow; the milk retains perfectly its natural aspect and condition; no curdling occurs, although the reaction becomes distinctly acid.

In artificial media the micrococcus forms, besides dumb-bells (diplococcus), beautiful chains (streptococcus). These differ in length according to the number of micrococci composing them, the short chains being a linear series of four, six, or eight micrococci, the longer ones of more than eight up to thirty and more micrococci. The longer chains are always curved, and even convoluted. The above-mentioned characteristic granular appearance of the growth is owing to the presence of smaller or larger masses of chains matted together.

Subcutaneous inoculation with artificial cultivations produces no perceptible disorder, but by *feeding* sheep with them—with a twentieth generation *the typical disease has been reproduced*—viz., vesicles and ulcerations on the feet. From the vesicle of such an animal lymph was obtained which, on cultivation, yielded the same micrococci, characterised by the same slow growth and the same typical general appearance as those used for the experiment. There can, then, be no question about the identity of this peculiar micrococcus with the cause of the disease.

Five sheep have been subcutaneously inoculated with active cultivations of the micrococcus, but neither locally nor generally was there any definite perceptible change produced. Subsequent feeding of these same sheep with the active micrococcus had no result. I conclude from this that a previous subcutaneous inoculation with the micrococcus provides the animals with immunity against the disease. I hope soon to be able to test this point on a larger series of animals.

Subcutaneous inoculation of the same micrococcus into guinea-pigs produced no result; feeding was followed by death after from two to three weeks. Out of six animals which received with their food a small quantity of milk containing the micrococci, three died—one from ulceration and perforation of the upper end of the duodenum, and two from ulceration and perforation of the large curvature of the stomach.

THE CONTAGIUM OF INFLUENZA (*INFLUENZA PECTORALIS*) OF HORSES.

BY PROFESSOR A. LUSTIG, VETERINARY SCHOOL, HANOVER.

PROFESSOR LUSTIG cultivated six different species of microbe from freshly inflamed lung, pleural exudate, and amber-coloured nasal discharge of horses which died of Pneumonic Influenza. According to him, the contagium is contained in a yellow-coloured cultivate of the smallest ovoid bacilli. They appear, when stained in the usual way with gentian-violet, to consist chiefly of micro- and diplo- cocci, but when treated with dahlia solution (saturated dahlia sol. in 100 parts of water, alcohol 50 parts, and glacial acetic acid $12\frac{1}{2}$ parts), their true bacillar form becomes apparent. These are the bacilli of Influenza.

The cultivate has a dry, dull, granular surface, grows, as a rule, very slowly by the projection of rounded prolongations, and while undergoing this process, it also increases in thickness. It vegetates only in the presence of air.

In sealed cultivation, growth takes place upon the surface of the medium only, and not unless the atmosphere is allowed to enter the vessel through some separation in the gelatine. These microbes belong, therefore, to the atmospheric order. By cultivation from the blood or watery pleural exudate of severe cases of Influenza, in Koch's flesh-pepto-gelatine medium, by the covered method, Lustig grew in several cases all, in others nearly all, his six different cultivates; but in isolated instances he could produce nothing; in some he only obtained the yellow cultivate.

He injected this last into the connective tissue of the chest of a healthy four-year-old horse. The result was extensive inflammation and painful œdema, which became more and more circumscribed, harder, and less painful. After fourteen days had elapsed, the swelling burst, and a "lymphatic," reddish fluid escaped, containing yellow and white flakes.

The yellow cultivate acts, therefore, as Lustig asserts, pathologically upon horses, and in fact is the contagium of chest Influenza.—*Centr. Blatt f. d. Med. Wissenschaft*, 1885, No. 20.

THE CASTRATION OF CRYPTORCHID HORSES (SPITZ-HENGSTEN).

BY L. NIELSEN, VETERINARY SURGEON, AARHUS, DENMARK.

(Continued from page 31.)

The Method of Operating.

Before operating, the bowels should be as empty as possible, and the rectum cleared out—*i.e.*, the animal should have fasted for about twenty-four hours, and a clyster administered about an hour before operating. This, however, is difficult when the horse is not under the immediate care of the operator, because owners will not let their animals fast so long.

If the testicle lies immediately on the inner side of the ring, it does not much matter whether the bowels are filled or not; but if one has to seek for the cord with the finger in the abdominal cavity, then it is important they should be empty, as they are easier kept out of the way in that state, especially as the bowels are much more forcibly pressed against the abdominal wall when an animal is cast and fixed for the operation than when standing; also, hernia is much less likely to occur when the bowels are empty than when they are distended with food.

After the animal has been thus prepared, he should be cast so that the side

to be operated upon is uppermost. It is advisable, if possible, to choose a place where the ground is sloping, so that the head can be placed lower than the hinder parts, whereby the intestines are thrown forward, away from the pelvis. We usually operate under chloroform-narcotism, 1-2 oz. usually being sufficient. The scrotum is then thoroughly washed with soap and carbolised warm water. An incision about 10 cm. long is made through the skin immediately anterior to the border of the pubic bone, but nearer the limb than the scrotum—in fact, at the point where the abdominal wall feels the thinnest. This incision should be made through the skin when it is folded, so that the small vessels which lie under the skin are not wounded. There is a vein running from the limb to the middle line of the body, just at the point where the incision is usually made, and if this be injured considerable hemorrhage takes place, and interferes with the operation. The subcutaneous tissue is then broken down by the forefingers ; this is easily accomplished, and produces no hemorrhage, which must, during the whole operation, be avoided, if possible.

The operator should now satisfy himself whether the testicle lies in the canal or abdominal cavity. If he is satisfied that it lies in the latter, the abdominal muscles must be divided by the fore and middle fingers, and, at the same time, the peritoneal lining, by a quick and forcible jerk of the finger, quickly divided, so that it is not torn from the muscles beneath. This forcing is usually easily accomplished ; however, the yellow abdominal fascia (*tunica abdominalis*) is sometimes so thick that the fingers must be passed somewhat slantingly, in order to get through it. The wound through the subcutaneous tissue, the abdominal wall, and the peritoneum must be as straight and regular a canal as possible. If the horse is not fat, and the wound straight, the abdominal cavity can be easily reached by the finger. An oblique wound is usually due to the yellow tissue resisting the passage of the finger through it, or the finger may get into the inguinal canal ; in which case the finger is not long enough to reach the cavity. In one such case we had to pass the whole hand into the abdominal cavity before the vas deferens could be found.

According to the above description, the normal direction for the wound canal is that the external (wound) opening is immediately in front of the inguinal ring, and then passes the shortest way through the abdominal wall, so that the inner (wound) opening is somewhat nearer the middle line than the internal ring. The opening should be as small as possible, only room for the two fingers to pass in ; the danger of the operation being in proportion to the size of the wound that is made.

As soon as the abdominal walls are pierced through and the fingers are in the abdominal cavity, a clean sponge should be placed around the fingers, to soak up any moisture, and prevent the air from entering the cavity as much as possible. The fingers are then moved about in all directions to seek for the testicle ; first along the wall of the abdomen, for it is often found in the neighbourhood of the internal ring. However, it is usually not so easily found ; for, if the horse lies on its back, the testicle frequently falls on to the intestine beneath it, and its position can be so different that it is difficult to find it, and frequently impossible, with the two fingers. In this case the vas deferens must be felt for, and this always lies posteriorly to the wound. If the horse is not fat, nor the intestines full, the vas deferens can usually be easily detected by the fingers being passed backwards. C. R. Jensen and J. S. Petersen have observed that the intestine, ureter, etc., can be touched and handled without the animal evincing any signs of pain ; but as soon as the testicle or vas deferens is felt, the animal immediately begins to struggle, and becomes restless, also the vas deferens is pulled away. Although I usually operate under chloroform, I have also observed the horse to be rest-

less, and struggle when I catch hold of the cord. This is a sign that we have got what we require, and it must be held firmly ; because it frequently happens that it is enveloped in a duplicature of peritoneum, which makes it difficult to retain and withdraw through the operation wound. When it is withdrawn, the operator must carefully draw it further, when the testicle will follow ; for, if the wound canal is large enough to allow two fingers, it is usually large enough to let the testicle pass through. Should the operator get hold of anything and draw it out, and not know what it is, he must put it back again. However, it often happens that it is the very thing you have been seeking for.

If the testicle cannot be found, it may be necessary to pass the hand itself into the cavity, although this is very rare. This only happened to us once, and that was when the wound canal was made slantingly, on account of the toughness of the yellow abdominal tissue. However, no bowel came down, and the horse got well.

That it is sometimes necessary to pass the hand and arm into the abdominal cavity, as has been asserted by some castrators, is extremely doubtful, since the testicle always lies nearer the abdominal wall than the lumbar region. J. S. Petersen says that the testicles are never found in the lumbar region. C. R. Jensen sought in vain for the testicle in the lumbar region in one case, but, as he was withdrawing his hand, he felt the gland on the side of the abdominal wall.

After the testicle is drawn outside of the wound, a pair of clams are placed on the spermatic cord. The clams are small ones, about 9 cm. long ; no caustic is used, but the clams are well cleaned and disinfected. A stitch is then put through the wound in the skin, both in front and behind the clams, in order to prevent any escape of intestine. The animal is then placed on his side, and the hobbles, etc., removed. He generally remains lying for about fifteen minutes longer before the effect of the anæsthetic ceases, and then he gets up. The animal is then usually a little unsteady in his gait, and sweats profusely ; this, however, passes off in about an hour, and his appetite returns. We have operated upon some who have appeared none the worse directly they have been allowed to rise, and which began to eat as soon as they reached their stable. The time usually occupied in casting, chloroforming, and operating, is half an hour.

After the operation is over, the animal should be brought into an airy, but not draughty, stall, and be so placed that the hinder parts are higher than the fore during the first twenty-four hours. The water should be limited, and the food (green meat, if possible) only in about a quarter the quantity usually given to a healthy horse. After twenty-four hours, the clams may be removed, and the cord let loose and placed inside the wound of the skin. Sometimes swelling takes place around the wound, and the stitches break through ; at others, they remain till next day, when they should be removed, and the edges of the wound brought together without interfering with the edges of the cord, so that it remains in the wound canal. We believe that the cord remaining in the canal assists largely in preventing the intestines protruding. Stockfleth removed the clams ten hours after operating, and pushed the cord into the cavity ; an hour later the intestines came through the wound, so that the animal had to be re-cast and the clams re-applied. They remained on six days, but the animal died on the eighteenth day after the operation, from Peritonitis.

The animal is usually feverish the day after the operation, which reaches its highest point on the third day. The after-treatment consists in washing the parts daily with tepid carbolised water, complete rest for the first four or five days, and feeding with green-stuff. When the fever has subsided and the animal appears only slightly incapacitated, he may be placed in a loose

box, or a little exercise given. But so long as the fever is high and the animal is generally ill, exercise must on no account be allowed, as it tends to increase the fever and stops the appetite. Most of those cases operated upon by us recovered in from three to four weeks.

The operation of cryptorchid castration is carried out under the necessary antiseptic precautions. No covering, however, should be used ; but the hands, instruments, sponge, etc., must be scrupulously clean and disinfected. We have only used the carbolised spray twice, and on both occasions the horses died three days after the operation, from Peritonitis.

In three cases we placed a wadding covering, sprinkled over with iodoform, around the cord, before placing it in the wound canal ; and no cases could go on more satisfactorily, although the wadding prevented the wound being properly stitched up. Therefore, we should recommend that the iodoform powder be sprinkled in the canal only, and then the stitches applied in the usual way, as we have described above.

In the majority of stallions reported to be cryptorchids, the testicle is found lying in the tunica vaginalis communis, in the inguinal canal. Out of fourteen true cryptorchids we have operated upon, twelve were successful and two died. The latter were the two first we operated upon, mentioned above. These were operated upon at the Veterinary School, with the assistance of a colleague, in the following manner :—The incision was made in the usual place, immediately in front of the pubic bone, first through the skin, then the tissues and the muscles ; and as we did this, much blood flowed, which we endeavoured to stop by torsion, or by tying the arteries as we severed them. This, of course, took a long time. After we had withdrawn the testicle, the cord was ligatured by catgut and the ends cut close to the knots tied on the cord, and the testicle removed with the knife. The whole operation being performed under the carbolised spray, the result was very unsatisfactory ; the operation lasted long, and the animals died three or four days afterwards from Peritonitis. Therefore we abandoned this method, and now carry out that mentioned in the foregoing pages. The same appears to be the experience of others also.

Of the twelve cryptorchids operated upon successfully, two showed signs of Peritonitis on the third day, but fortunately recovered. Three suffered from inflammation of the cord, but kept feeding all the time, and recovered. One had a large abscess form in the inguinal region a month after the operation, but soon recovered, and in six months was quite well. Another, long after the parts had healed and the horse had been worked, showed an inguinal hernia on the side operated upon, but it in no way interfered with the animal's usefulness. Four of the cases were operated upon in the Veterinary Institution, and there remained until convalescent. The other eight were operated upon in different parts, of the country. The later operations were performed quicker and did better, than those first undertaken by us. We have never seen the bowels "come down" during or after the operation.

Stockfleth has operated in various ways, by the flank, through the inguinal ring, and by the above-mentioned method of incision in front of the pubic bone (laparotomy). He has not published the results of all his operations, though privately he has told us that he has lost 33 per cent. ; but we must remember his operations were conducted with the view of proving the value of the different methods of operating. He says the cause of death was Peritonitis, and it generally took place eight or nine days after operating.

C. R. Jensen operated after our method, but used a caustic clam instead of a plain one, and removed it eight or ten hours after operating. He never had protrusion of intestines or Tetanus follow. He operated upon several cryptorchids each year, and during fifteen years has only lost three ; therefore we may say he has been very successful.

J. S. Petersen had another method. He usually pressed through the ring, or through an incision near it, into the abdominal cavity. In a few cases he operated after our and other methods, nearer the middle line. The spermatic cord was sometimes trapped in clams and sometimes bound by waxed yarn. Latterly he has only used the latter method, leaving the ends of the yarn long enough to hang out of the wound. The wound was not stitched up. From 1867 to 1872 he operated upon twenty-six cryptorchids, six of which died—viz., three from protrusion of intestines, one from Acute Peritonitis, one from Chronic Peritonitis, and one from Tetanus. This death-rate, however, is too low, because it was found that, within four months after the operation, half of those he operated upon died. From 1873 to 1878 Petersen operated on twenty-five cryptorchids, between the ages of two and four years old, eight of which succumbed—32·5 per cent.* In one an intestinal fistula showed itself fourteen days after the operation, through which the contents of the intestines flowed ; this horse was destroyed.

Another question arises—viz., if an animal has one testicle “down,” normally, in the scrotum, and the other in the abdominal cavity, ought they both to be removed at the same time? Stockfleth once operated in this manner. He first extracted the testicle from the abdominal cavity, and placed a clam on the spermatic cord, stitched up the wound in the skin, and then proceeded to remove the normally-situated gland. During the last operation the horse struggled, when a sharp, whistling noise was heard, as though air was being sucked through an opening. On examining the operation wound, a loop of intestines had been forced through the wound in the abdominal muscles under the skin. The stitches in the skin were therefore removed, the bowel replaced in the abdominal cavity, and deeper and stronger stitches supplied. The animal recovered. Stockfleth came to the conclusion that it is better to allow the animal to recover from the one operation before the other is attempted. Moreover, an animal with one testicle may have more strength to resist the ill-effects of the other being removed. C. R. Jensen also removed both testicles from a two-year-old “rig” at the same time. The animal was much weakened, and was slow to recover. We have never removed both glands at once, although we have been frequently asked to do so ; but have always refused, saying that the animal must remain for a month or two longer.

We have never had an opportunity of seeing a horse with both testicles in the abdominal cavity (anorchids). J. S. Petersen, however, castrated two such animals at one operation each, but both died.

H. C. Jensen also operated on two, both of which recovered. C. R. Jensen has operated on two such cases, removing only one gland at a time, and in one case allowing a month to elapse after recovery from the first before he attempted to remove the second, and the operation was successful. In the other he allowed six months to elapse between the two operations, but the animal succumbed to Peritonitis. This may have been due to the fact that Jensen had in this case to pass his hand into the abdominal cavity in order to find the testicle.

There are cases recorded in Danish literature where the testicles have been removed through an opening in the flank, but above half of such cases ended fatally. In the others the wound in the flank healed slowly, and the treatment after the operation was carried out with difficulty. This method, therefore, has ceased long ago, and, as far as we know, has not been recently tried ; in fact, not since Stockfleth pointed out, in 1866, the advantage of making the incision immediately anterior to the pubic bone.

FLUID EXTRACT OF MUSTARD

THE value of mustard as a counter-irritant is well known in veterinary practice, it being at once the promptest, safest, and least annoying to the animals to which it is applied. Unfortunately, none of the preparations of mustard—such as leaves, which have been introduced for use in human practice—can be made available by veterinary surgeons, who are compelled to resort to the powder or flour, and mix it with water when they require to apply it. This is neither a cleanly nor a convenient way of employing mustard, and if the article has to be carried its bulk is an objection; in addition to which, unless kept dry and in a carefully closed receptacle, it soon becomes deteriorated. All these disadvantages are obviated in the preparation of mustard which M. Savary, of Amiens, has introduced, and which cannot fail to be greatly appreciated by veterinary surgeons in this country. The French Ministers of War and Agriculture have adopted it in their several departments, and it is employed in the hospitals of the veterinary schools of France, as well as in the Paris omnibus and cab companies, and in other stables in that country. So valuable are its properties, and so great the advantages to be derived from its use, that after careful trial it has been adopted by the Veterinary Department of our Army, to which it will prove a great boon, especially on board horse-transports and in the field, no less than in barracks or on the march at home. It can be utilized at once, and while it may be applied so that it will act more speedily and powerfully than the ordinary mustard plaster or cataplasm, it can be so modified as to produce the effect of a slight rubefacient; it is also cleanly, and does not require the sponging off and drying of the skin that mustard entails. With regard to portability and economy, it may be noted that a small bottle (about six ounces) of the essence represents 2lbs. 4oz. of mustard, and that any quantity of this may be used, while any remaining in the bottle can be kept for an indefinite period without losing its potency. Besides, the extract may be diluted to any extent with water, according as the effect produced is required to be severe or mild. Economy, portability, facility of application, cleanliness, and effectiveness, are fully secured by the employment of M. Savary's excellent Extract of Mustard.

AIR AND ITS RELATIONS TO HEALTH AND DISEASE.

BY FRED SMITH, M.R.C.V.S., ARMY VETERINARY SURGEON.

(Continued from page 35.)

I have spoken of this carbonic acid as parts per cent.; it is more simple to describe it as parts per 1,000, as it gives us a whole number, or a larger decimal, which is more readily remembered. We may consider our volumes per 1,000 as cubic feet, so that in every 1,000 cubic feet of air of the Ecole Militaire, 7 cubic feet of CO_2 was found. Dr. de Chaumont found 1 cubic foot and half a cubic foot; Mäcker, $8\frac{1}{2}$ cubic feet and 17 cubic feet; and Angus Smith, .8 cubic foot.

I have devoted especial attention to this subject, and have made nearly 200 analyses of the air of stables. The results obtained are not only interesting, but of real practical utility. In addition to many independent analyses, I have made three experiments for determining the amount of carbonic acid in closed stables, observations being made every quarter of an hour for three hours in two cases, and for six hours in another. It would weary the reader to give the details of these experiments, but I have endeavoured to express what occurred by means of the graphic method of a chart. In every case the CO_2 in the outside air, temperature, and moisture was determined, and the same done in the stable every fifteen minutes.

Taking the normal CO_2 in these cases at $\cdot 5$ or $\cdot 6$ per 1,000, we have a rapid rise in the amount of carbonic acid, which is especially remarked during the second and third quarters. This rise is kept up, though slower, until the second or third hours, when distinct fluctuations occur. The cause of these fluctuations appears to be that, after a time, the air gets so loaded with moisture that proper diffusion of the gases is retarded, and thus more is obtained at some times than at others.

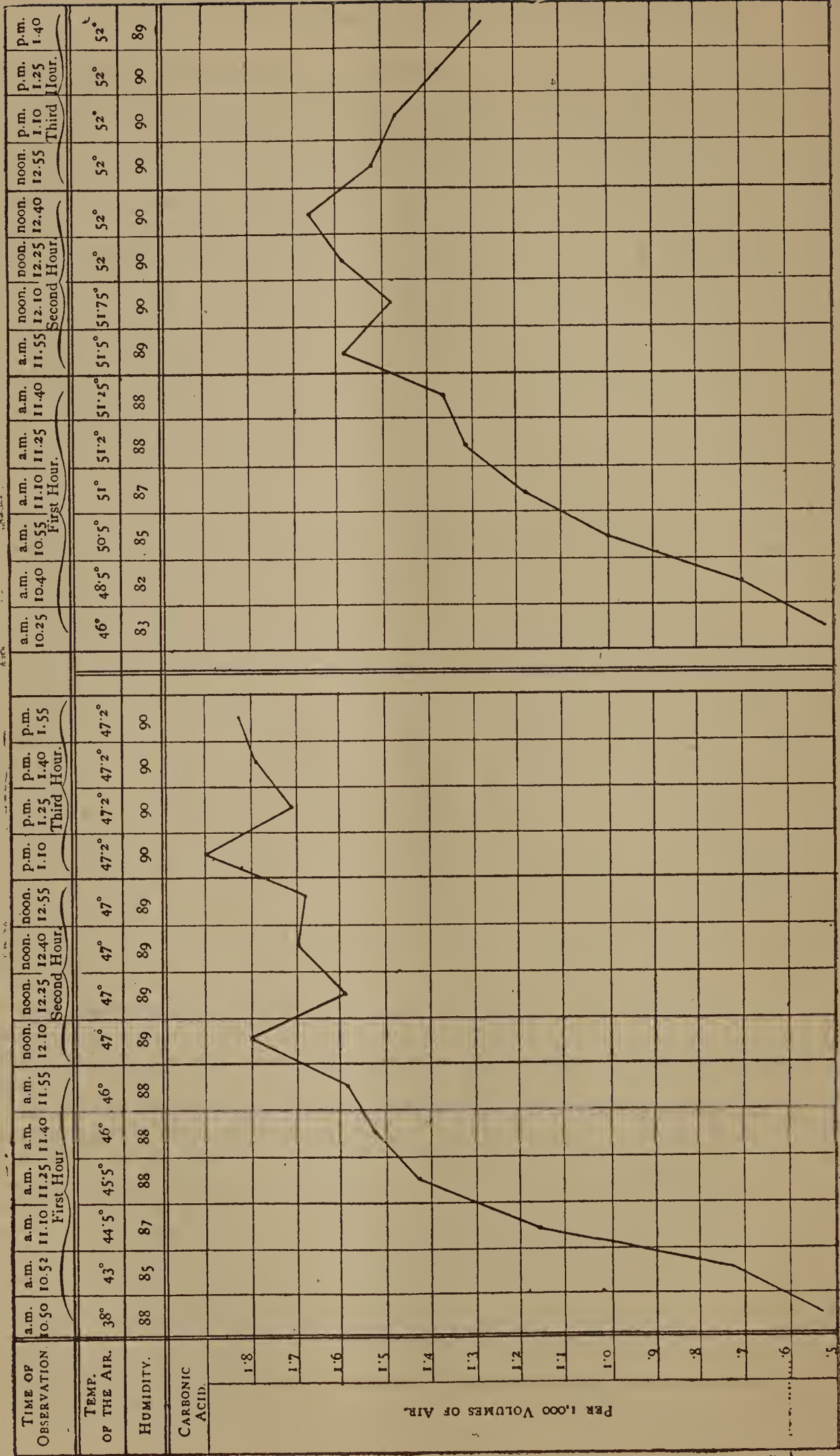
In Experiment I. the CO_2 varied from $\cdot 7$ to $1\cdot 8$ per 1,000. The maximum was reached in the middle of the second hour, and the impurity of this building was three times more than it should have been. In Experiment II the CO_2 varied from $\cdot 7$ to $1\cdot 6$ per 1,000, or nearly three times larger than it should have been. In Experiment III. the observations were made regularly every fifteen minutes for six hours ; the least amount of impurity was $\cdot 9$ per 1,000, the greatest $2\cdot 6$ per 1,000, or nearly four times larger than normal. In this last experiment, the maximum was reached during the middle of the fourth hour ; the chart here shows a distinct rise and then a fall ; this was due, I think, to the animal feeding, when, of course, a larger amount of CO_2 is given off.

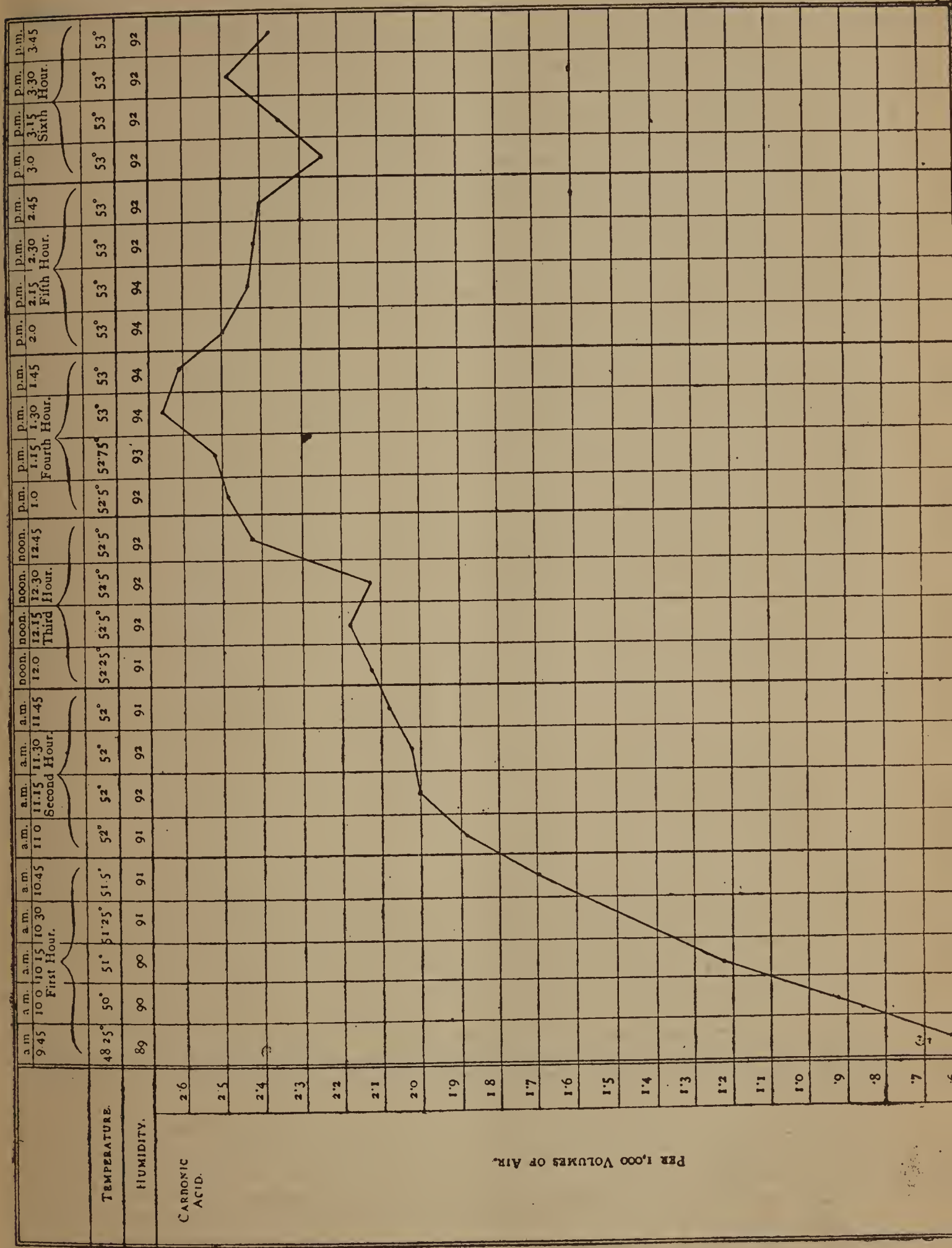
I am afraid that the apparent smallness of the number representing the carbonic acid found in stables will have the effect of causing one to think but lightly of its presence. Drs. Angus Smith and De Chaumont have both pointed out that a very small amount of carbonic acid shows deterioration of the air sufficient for the senses to observe. Strange as it may appear, yet the sense of smell can distinguish in London air differences amounting to $\cdot 04$ per 1,000 ; in fact, Dr. de Chaumont employs the sense of smell for detecting respiratory impurity in rooms which is exceedingly accurate, from $\cdot 6$ up to $1\cdot 3$ per 1,000 of CO_2 . To bring, however, more home to one the small amount of CO_2 which may be present in the air, and yet be the indicator of extreme impurity, I may say that a difference of $\cdot 2$ per 1,000 in a room is unpleasant to most of us, whilst the presence of 1 part per 1,000 of CO_2 in the air of a room renders the place extremely offensive and oppressive to the sense, or, as Angus Smith expresses it, "odious and unwholesome." Now if this is the effect of 1 part of CO_2 per 1,000, one may imagine the condition of the stable in Experiment III., where I found $2\cdot 65$ per 1,000 of this gas.

One more example to impress the fact that apparently minute changes in this acid are really indications of enormous increase. Let us take a stable of 10,000 cubic feet, such as would be occupied by six or seven horses ; the total amount of carbonic acid in it should be six cubic feet (or $\cdot 06$ per cent.). We now analyse the air of this stable, and find the carbonic acid is equal to $\cdot 266$ per cent. ; now this $\cdot 266$ per cent., when placed against $\cdot 06$ per cent., does not appear anything particularly striking ; but calculate it to show the amount in 10,000 feet, and we get $26\cdot 6$ cubic feet, or in other words, twenty times more than it should be. This shows us how carefully we should note slight increases in the CO_2 of stables as indications of the utmost importance. In calculating out the amount present in the air, we cannot be too minute ; the calculations should always be made to the fourth place of decimals, or one in a million. On reference to the table it will be observed that we have three stables showing enormous impurity, 7 per 1,000 in the French stable, and $8\frac{1}{2}$ and 17 per 1,000 respectively at Gottingen. It is quite impossible to imagine the condition of these airs to the senses ; when I obtained $2\cdot 65$ per 1,000 the air was abominable. Large quantities of CO_2 are found in the air of mines ; the very worst specimen yielded 25 per 1,000 of this gas ; but in this place lights would not burn, and the men could only work a few minutes at a time, and were often dragged out senseless ; yet we find 17 per 1,000 in this Gottingen stable, and carbonic acid, which has its origin in animal impurity, which is not so in the case of mines.

EXPERIMENT I.

EXPERIMENT II.





PER 1,000 VOLUMES OF AIR.

Let us briefly recapitulate these important points. The CO_2 found in the air of stables is an indicator of the amount of organic matter which is present, numerous experiments have fixed the total amount of CO_2 which should be found at '6 per 1,000; all over this indicates defective ventilation, and shows us that the animals are breathing impure air.

Ammonia is present in traces in the air of towns, but in air vitiated by respiration it may be found in large amounts. The ammonia itself is not injurious, but, as Dr. Smith expresses it, "it has very bad relations, and keeps best company;" in other words, it is the product of organic matter, and is regarded as another index of impurity. In determining ammonia chemists divided it into two forms, "free" and "albuminoid." The free ammonia, as its name implies, represents the free, saline, or uncombined ammonia present in the air; the albuminoid ammonia, on the other hand, represents the amount of nitrogenous organic matter present. In pure air the amount of free ammonia is '0009 grains in 35'3 cubic feet; and of albuminoid '0006 grains in 35'3 cubic feet. In a bedroom, before occupation, Angus Smith found '002 grains, and after ten hours' occupation '004 grains in 35'3 cubic feet. In the Portsmouth General Hospital the amounts were very large, no less than '012 grains of free and '019 grains of albuminoid ammonia in 35'3 cubic feet. I have made a few analyses of the air of stables, etc., for the presence of ammonia. We would naturally expect to find the free ammonia very large, and such is the case. I obtained '015 grains of the salt in 35'3 cubic feet of air of a badly-ventilated stable, and in a litter shed the amount was '005 grains. The albuminoid ammonia in stables badly ventilated is always high; '014 grains, '009 grains, and '024 grains in 35'3 cubic feet of air were found. Over a dung-pit the amount was '028 grains of albuminoid ammonia.

TABLE SHOWING THE AMOUNT OF AMMONIA PRESENT
IN STABLE AIR.

	Free Ammonia in 35'3 cubic feet.		Albuminoid Ammonia in 35'3 cubic feet.
Pure Air.....	'0009 grains	..	'0006 grains.
Badly-ventilated Stable	'015 "	..	— "
Litter Shed	'005 "	..	— "
Air over a Dung-pit	— "	..	'028 "
Badly-ventilated Stable	'0149 "	..	'014 "
" " "	— "	..	'024 "
" " "	— "	..	'069 "

These quantities, like the carbonic acid, may appear very small, but I assure you that, on the other hand, they are indications of enormous impurity.

Sewer Air has a variable composition, depending upon the amount of decomposition and the extent of dilution with air. These gases are hydrogen sulphide, ammonium sulphide, nitrogen, carbon dioxide, carburetted hydrogen, and foetid organic matter (Parkes). The organic matter is peculiar, and possesses such powers of penetration that it is stated it will pass easily through walls; its vapour is carbo-ammoniacal, and the putrid substance a compound of ammonia. The air of sewers, by means of proper ventilation may be kept in a fairly pure state. In London sewers '532 per cent. of CO_2 , much ammonia, and traces only of hydrogen sulphide were found by Dr. Letheby. It is the organic matter in sewers, and not the gases so much, that do the harm. This organic matter has been collected and estimated by Angus Smith, who found that 8,000 cubic feet of the air of a house into which sewer-gas had found its way, destroyed more than twenty times the amount of permanganate of potash as pure air of similar amount; he also found that sixty-two feet of air from a cesspool destroyed as much potassium permanganate as 176,000 cubic feet of air. The largest amount of

material contributed by stables to sewers is in a liquid form, consisting of urine with suspended matter from the fæces. Compounds of ammonia are the chief gases in this mixture, derived from the decomposition of urea. From the air of sewers bacteria of different forms have been obtained.

Emanations from Manure Pits are commonly believed, even by well-informed persons, to be *healthy*. The idea is a very absurd one, and probably arises from the fact that outbreaks of disease are not traceable to this cause, as others more potent and nearer to the animal are acting at the same time. Manure, when placed in the pit, undergoes decomposition; large quantities of ammoniacal gases, organic vapours, and carbonic acid are formed, but owing to the nature of the mass these substances can only escape in a partial degree, and are rapidly diluted with air as they pass out, so that the odour of the substance, though marked, is faint. But let that surface be removed, then the noxious, penetrating, poisonous products of animal and vegetable decomposition come out with full intensity.

I have made several experiments on the air of manure pits. I chose one where the manure had been standing three months (pure air that day gave '3496 of CO₂ per 1,000 vols.) On removing a foot or so of the mass I found the carbonic acid was 3'1762 per 1,000 (nine times that in pure air). On first removing the upper crust I obtained 1'1282 per 1,000, or less than half that first found. On taking the air from the top of the pit, without touching the mass, I found '8750, or nearly quarter less than the original amount. I next determined how far from the pit the excess of carbonic acid could be detected; I found that at thirteen yards to leeward it could not be found, at seven yards it was marked.

TABLE SHOWING THE CARBONIC ACID IN THE AIR OF A MANURE PIT.

	Carbonic Acid.
Pure Air	'3496 per 1,000 volumes
Air from the oldest part of the pit, the mass being turned up to collect it	3'1762 „ „ „
Air from the top of the pit, the upper surface just removed	1'1282 „ „ „
Air from the top of the pit, the surface being undisturbed..	'8750 „ „ „
Air from some fresh manure recently deposited.....	'8517 „ „ „
Air taken seven yards to leeward of the pit	'4096 „ „ „
„ „ thirteen „ „ „ „ „ „ „	'3474 „ „ „

We may, therefore, say that no dung pit should be nearer to a stable than thirteen yards. I next examined air collected in litter sheds, such as they use in the service to place the bedding in during the day. I found, as a rule, only a slight increase in carbonic acid, though in one case it was very large. The small amount of CO₂ in these sheds is accounted for by the care which is observed in separating all manure and soiled litter from the bedding which is to be retained.

Gaseous Impurities are conveyed to the air by the products of coal combustion, manufactories, particularly chemical works; brick-fields, copper smelting; and the result of organic decomposition, such as arises from slaughter-houses, bone and tallow works, etc. These gases are composed of carbon, sulphur, nitrogen, chlorine, etc.

Coal gas is a compound containing olefant gas, hydrocarbons, hydrogen, marsh gas, carbonic oxide, hydrogen sulphide, nitrogen, carbonic acid, sulphur dioxide, carbon disulphide. The odour of coal gas is so penetrating that one part in ten thousand is readily recognised by smell. Recently Pettenkofer has investigated the subject of coal-gas poisoning. The burning of gas alters the composition of the atmosphere, the same as the process of respiration; it gives off carbonic acid, watery vapour, and consumes oxygen. A single gas flame raises the temperature of

a room as much as eight men ; contributes as much carbonic acid as three ; and nearly as much aqueous vapour as five ; while it consumes as much oxygen as six men. One cubic foot of gas will raise the temperature of 31,290 cubic feet of air 1° Fahr. It is necessary that the amount of vitiation of air, which the combustion of gas will bring about, should be remembered. Most of our stables are lighted by this means, and arrangements should be made in badly-ventilated buildings, by means of an outlet above the flame, to reduce the contamination as much as possible.

Sulphuric acid works give out sulphuric acid, nitrous and sulphurous acid gas, and arsenic ; copper works send out large quantities of sulphurous acid and arsenic ; alkali works give forth hydrochloric acid. From ammonia works sulphuretted hydrogen is evolved. The effect of these acid gases on vegetation is considerable, as we will refer to later on.

The Air from Marshes contains an excess of CO₂, a diminished proportion of oxygen, and compounds of hydrogen, nitrogen, and watery vapour. The organic matter contains bacteria.

Inorganic substances in the air produce no ill-effects on animals of which I am aware. The long list of diseases in man produced by their agency is entirely the result of civilization. I allude to those affections produced by the inhalation of poisonous vapours, as in match-makers, tin-plate workers, coppersmiths, painters, etc., etc., or of solid particles, as in miners, potters, knife-grinders, file cutters, &c.

DISEASES PRODUCED BY IMPURE AIR.

It is only since the end of the last century that the necessity of animals being supplied with pure air has been recognised. James Clark, a veterinary surgeon, of Edinburgh, in a work published in 1788, drew forcible attention to the foul condition of the air of stables. Following close on this we had the outcry of Coleman ; it was the position of influence which he occupied in the scientific world which enabled his views on ventilation to be brought prominently before the public. Fresh air in those days was considered not only unnecessary, but actually pernicious, and every attempt was made to rigidly exclude it from buildings ; every aperture, as Stewart tells us, being closed, the keyhole and threshold of the door not being forgotten. Is it any wonder that, in an atmosphere of this sort, disease reigned supreme ?

There is probably no cause, or aggregate of causes, which has contributed so much to the production of disease as foul air. The introduction of a proper system of ventilation has been the means of practically eradicating diseases which carried off animals by hundreds, and has saved both the country and private owners thousands of pounds. The credit of this must be entirely given to Coleman. Apart from what has been handed down to us by tradition, we have the fact actually placed on record by Sir Astley Cooper,* in which it is stated that thousands a year were saved to Government in consequence of Mr. Coleman's annual visits to the military stables throughout Britain. Farcy, which, previously to his interference, had committed annually most extensive ravages, became nearly erased from the Government returns of disease. We are told that "a stable in which many horses had died in rapid succession, although it had undergone the usual discipline of cleaning and whitewashing, was reported to Mr. Coleman as having some undiscoverable evil, probably arising from its situation. Mr. Coleman accordingly examined it, and having ascertained that its defects arose from a mal-construction, by which all proper ventilation was prevented, recommended Government immediately to make certain alterations, by means of which this would be remedied. This recommendation at first met

* "Life of Sir Astley Cooper."

with considerable opposition on account of the expense involved in the proposed improvements. His plan, however, was afterwards adopted, and it is a curious fact, that in the first year the expenses of Government were repaid by the saving, in consequence of the entire absence of disease among the horses."

The mortality amongst the horses of the French cavalry was at one time frightful ; previous to 1836 they lost 180 to 197 per 1000 per annum ; the air space being increased reduced the losses in the next ten years to 68 per 1000.

The following table* shows the mortality from Glanders and Lung disease among the horses of the French cavalry, from 1847-1866, a period of nineteen years.

	1847-52. Ratio per 1000.		1853-56. Ratio per 1000.		1857-61. Ratio per 1000.		1862-66. Ratio per 1000.
Glanders	23'32	....	21'44	....	10'97	....	7'24
Inflammation of Lungs and Pleura } ..	104'7	....	110'6	....	45'8	....	3'59

This table shows that in nineteen years, a reduction of 16'08 per 1,000 had occurred in cases of Glanders, and no less than 101'11 in cases of Pneumonia and Pleurisy. These wonderful results were obtained through the labours of a Commission of Veterinary Military Hygiene, which pointed out the necessity of the ventilation of stables, increased cubical capacity, and attention to sanitation, feeding, and general care. The practical outcome of these results were, that a saving of £90,000 per annum was effected in the purchase of horses. Exception may be taken to my introducing cases of Pneumonia and Pleurisy into this table, but it should be remembered that the production of these diseases from chills and exposure to inclement weather, is generally considered by the best authorities to have been carried too far, and that the impure air breathed is a much more probable cause. This view has especially gained ground since Pneumonia, at any rate of the human subject, has been proved to be an infectious disease. The table lends great strength to this theory ; there is no reason to believe that the winters from 1857 to 1866 were milder than those between 1847 and 1856. The only explanation of the great difference in the mortality is the larger amount of pure air supplied and the better ventilation of the stables.

Reynal has shown that in the old crowded stables of the Alfort Veterinary School, cases of Pneumonia as well as severe wounds quickly assumed a putrid character, and nearly always terminated fatally ; but when the buildings were enlarged, well ventilated, and fewer animals admitted, this mortality ceased.† The dreadful sufferings of animals crowded together in transport and cattle ships are well known. Professor Coleman, in his evidence before a Committee of the House of Commons, stated that in the Expedition to Quiberon, the horses had not long been on board the transports, when it became necessary to shut down the hatchways on account of bad weather ; the consequence of this was that some of them were suffocated, and all the rest were disembarked either glandered or farcied. He further stated that in the year 1796, when there was a great encampment at Dover, the Government could not get sufficient stabling for the horses, and over-crowding in close and confined places was the result. The most healthy horses became glandered. Some animals were sent to Hythe and placed in an open shed, and not one of those became affected. Percivall's experience during the Peninsular War was identical with regard to over-

* Copied from a most interesting and valuable paper on "The Vital Statistics of Cavalry Horses," by Dr. Balfour, F.R.S., *Journal of the Statistical Society*, June, 1880.

† "Sanitary Science and Police." G. Fleming, LL.D., F.R.C.V.S.

crowding. The production of Tuberculosis amongst cattle confined in ill-ventilated sheds is well known. In the Italian War of 1859, M. Moulin, the Chief Veterinary Surgeon, kept 10,000 horses many months in barracks open to the external air in place of closed stables. Scarcely any horses were sick, and only one case of Glanders occurred.* The case of the monkeys in the Zoological Gardens is well known. A room most luxuriantly fitted up was erected for their occupation. The ventilation was, however, so defective, that of sixty healthy animals placed in this house, fifty were dead in a month from Phthisis, and the remainder were dying. On being properly ventilated the place became perfectly healthy. About thirty years ago a severe epizootic of Influenza appeared in Boston. At the instigation of Professor Bowditch, every stable in the city was inspected and classified as "excellent," "imperfect," or "wholly unfit," in respect to warmth, dryness, light, ventilation, and cleanliness. It was found in the first class fewer horses were attacked, and the disease was milder; while in the third class every horse was attacked, and more severe and fatal cases occurred. In respect to the numbers attacked, and the general characteristics of the disease, the three classes stand to one another, as 1, 3, 5.†

(To be continued.)

PROFESSOR BOULEY

IT is announced that a monument is about to be raised, by public subscription, to the memory of the late Professor Bouley, at the Alfort Veterinary School, and an appeal has been made by the Société Centrale de Médecine Vétérinaire to all veterinary surgeons, to Medical Faculties, and to the learned bodies to which the illustrious veterinarian belonged, to participate in this worthy movement. M. Bouley was an Honorary Associate of the Royal College of Veterinary Surgeons, and this—besides the great services he rendered to Veterinary Medicine, gives the appeal a strong claim to the attention of our colleagues in this country. The subscription list closes in March, and subscriptions are received by Messrs. Asselin and Houzeau, Librarians, Place de l'Ecole de Médecine, Paris. We feel certain many of the veterinary surgeons in this kingdom would like to testify to the esteem in which they hold the memory of this great man.

Proceedings of Veterinary Medical Societies, &c.

NORTH OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

THE usual quarterly meeting of this association was held at the County Hotel, Newcastle-on-Tyne, on November 27th, 1885; the President, G. Elphick, Esq., in the chair. There were present ten members and three visitors. The following gentlemen were elected office-bearers for the ensuing year: President—Mr. J. B. Nesbit, Fence Houses; Vice-Presidents—Messrs. A. Chivas (Corbridge), and Mr. Hedley, Darlington; Secretary and Treasurer—Mr. Gresty, re-elected; Auditors—Messrs. C. Stephenson and A. Hunter, Newcastle-on-Tyne, re-elected.

The PRESIDENT then called upon Mr. GRESTDY to read his paper as follows:—

* "Practical Hygiene." E. Parkes, M.D., F.R.S.

† "Hygiene and Public Health." A. Buck, M.D.

OBSTRUCTED BOWELS.

Mr. President and Gentlemen,—The subject I have selected to bring forward for discussion this afternoon—viz., “Obstructed Bowels”—is one which I feel sure will meet with your approval; not that I have anything original to call your attention to, but from the fact that cases of this oft-times troublesome complaint are of daily occurrence in our different practices, and any fresh hints that we may gather when relating our various experiences will, I feel sure, be most acceptable to us all. It is not my intention, gentlemen, to go deeply into the subject, but merely to give you as much useful, practical matter as I can with the limited time at my disposal; and, in order to simplify my paper as much as possible, I propose to take the following headings, and treat them in rotation:—

- 1.—Definition.
- 2.—Causes which are liable to produce the disease.
- 3.—Symptoms: their modifications and stages.
- 4.—Treatment.

1.—*Definition.*

To define Intestinal Obstruction is rather an awkward matter, owing to the difficulty in drawing a line between this and other intestinal diseases. The only definition I can give you, which is at all satisfactory, is as follows: Obstructed bowels comprise all those cases in which the contents of the intestinal canal are obstructed in their onward passage by causes or conditions occurring within the abdomen or pelvis.

2.—*Causes.*

The causes of Intestinal Obstruction are numerous and varied, comprising as they do those from accidents and from natural causes. Obstruction from the accidental admission of foreign bodies into the alimentary canal are much more common in dogs than in other animals, owing probably to the peculiar nature of their food and their depraved appetite; and it is most interesting to look up old records and note the strange things that have been swallowed by dogs, and have been the means of causing obstruction—pieces of wood, corks, rope, bones, needles, etc., in fact, almost anything that is portable and possible to swallow; other frequent causes in our canine patients are worms and pieces of indigestible hide, the latter of which dogs have a peculiar liking for. In our equine patients the causes are very varied, and in a great majority of cases difficult to find out; often no special cause can be detected at all, even under the most minute inspection of the animals surroundings, food, etc.; and cases frequently occur where the seat of the obstruction and its cause the veterinarian attending is entirely ignorant of. Probably, the most common cause is indigestion, due to over-feeding on improper diet, such as coarse, rough hay or straw containing too much woody fibre. The most frequent seat of obstruction from this cause is in the colon, and the practitioner is often enabled, by exploration per rectum, to satisfy himself of the exact seat of the obstruction and also, to some extent, of its severity. Another common cause is from calculi, which are generally found in the large intestines, and in some instances attain enormous sizes. In addition to the two causes already mentioned, we get Intestinal Obstruction from intussusception, Volvulus, compression, constriction, stercoral concretions, and Paralysis. Several of the last-named are only rarely met with, particularly intussusception, compression, constriction, and stercoral concretions; Volvulus, again, is a common factor in producing obstruction, and, unfortunately, so far as our veterinary patients go, a very effective and fatal one.

Paralysis, as a rule, is not an immediate cause, but is generally preceded by some other cause or disease, such as Enteritis.

It is very seldom indeed that obstructed bowels are, in horses, caused by the accidental admission of foreign bodies into the canal ; but that this is quite possible, although I venture to say very rare, is evidenced by the following unique case, the history of which appeared in one of the daily issues of the *Manchester Courier* in the year 1866, under the heading of "An Extraordinary Cause of Obstruction in a Horse's Bowels : Importance of Examination per Rectum.—By Thomas Greaves, M.R.C.V.S. A few days ago a valuable lorrie-horse, the property of Messrs. Carver and Co., of this city, exhibited abdominal pains as he was returning from his work. For nearly three days his sufferings were excruciating, and without one moment's intermission. All remedial measures were unavailing, and it was apparent that he must inevitably have sunk in a few hours unless relieved.

"At this juncture, as Mr. Greaves was carefully exploring the bowels, at the stretch of his arm, the tips of his fingers came in contact with a strange substance. On tearing away a small portion, it was found to consist of a fibrous material, and the substance was so firmly impacted in the bowel that it took him twenty minutes of gentle, persistent effort before he succeeded in grasping this foreign body ; it required both hands to bring it within sight, and then, with the aid of the head horsekeeper, it was successfully extracted. It consisted of a considerable strip of coarse nail bagging, partly masticated, and densely impacted in feculent matter. It was fourteen inches in length, twelve inches in circumference, and weighed two and a half pounds. The grateful feelings expressed in the face of the suffering animal were apparent to all around him, and indicated the great relief he experienced. Although the pains subsided from that moment, the constitutional disturbance was so serious as to require the greatest possible after-care. For fourteen days he was in a most critical state ; for six days he ate next to nothing, and his pulse marked over 100 beats in a minute, and during the next six days ranged about 80. He is now entirely recovered. Taken as a whole, this case stands without parallel."

Indirectly, small foreign bodies do occasionally act as obstructionists, but only, as a rule, when they form the nucleus for a calcerous deposit, which finally may attain sufficient size to obstruct the canal.

In cattle, what is commonly known as obstructed bowels is, in nineteen cases out of twenty, impaction of some part of their capacious stomachs, which, owing to their large size and complicated arrangement, give the food a much better preparation than the smaller ones of horses, dogs, and pigs ; thus, instead of the intestines in these animals having, to a great extent, to prepare the food for assimilation, the food, after it passes out of the fourth stomach in ruminants, is in such a condition that there is little tendency to cause obstruction.

Cases of purely obstructed bowels in cattle do occasionally make their appearance, especially in some counties where the castration of bulls is very common, under the title of "Gut-tie." These peculiar cases which, I believe, are not uncommon in the south, may be classed under the head of causes from constriction, being due to a peculiar strangulation of the intestine by the spermatic cord and peritoneum.

Other isolated cases of stricture of the small intestines in cattle have been chronicled in our different journals, and in the majority of these cases the writers have agreed that the original cause was probably some slight twist, which, having relieved itself again, has been succeeded by some slight inflammation, causing gradual thickening of the coats of the canal, and consequent diminution in its calibre.

3.—*Symptoms, their Various Modifications and Stages.*

The symptoms of this disease vary a good deal in our different patients ;

in our canine friends they consist principally in an anxious expression quickened pulse, continuous uneasiness, vomiting, and ineffectual efforts to defecate.

In horses the symptoms and their various stages are very interesting. If only a slight attack, nothing particular will be seen except that probably the patient has had a very mild attack of colicky pain, and that no fæces have been passed for some considerable time. In severe cases the symptoms are much more severe and prolonged, and vary, to some extent, according to the position of the obstruction.

The general symptoms noticeable at the commencement of severe cases are, colicky pains continuous and prolonged, quickened pulse, blowing, sweating, anxious expression, mucous membranes dirty and injected; straining, and in some cases, in the first stages, purging; mouth pasty, fetid, and with a peculiar, gunpowdery smell; more or less hardness and distension of the abdomen, and in many cases total absence of intestinal murmurs.

These symptoms, if not successfully combated, become gradually aggravated, the anxious expression gets more pronounced, the pulse feebler and sometimes almost imperceptible, the colicky pains increase, the blowing becomes more laboured, the mucous membranes more injected, cold sweats bedew the body, and the patient becomes gradually exhausted from pain and exertion. If these latter symptoms appear in an animal where energetic treatment has been of no avail, a fatal termination may be looked for.

In the first stages quantities of fæces may be passed—in fact, this is often the case, and may lead the practitioner somewhat astray without he is careful and observant. In cases where Volvulus is the cause of obstruction, the symptoms are very severe and continuous, and, in addition to those already mentioned, the patient will often evince a desire to roll over on his back or sit on his haunches, and will remain in that position for some considerable time.

In some cases of Volvulus the twisted gut can be plainly felt per rectum, and it is not impossible, if the twist is quite recent and within easy reach of the hand, that careful manipulation may be of some benefit. Again, I have frequently noticed, in cases where the obstruction has been due to impaction of the colon, that the animal so affected would make no attempt to lie down, but would stand continuously, occasionally looking round at his flank, crouching down, twisting his tail, and probably, if in a box, rubbing his rump up against the wall.

When calculi are the offending bodies you may get any of the symptoms mentioned, and without the calculus is within reach of the hand per rectum, it is almost impossible to diagnose correctly. The best guide we have for detecting these foreign bodies is undoubtedly the previous history of the patients; this is not at all times easy to obtain, but it frequently happens, where the practitioner has attended the same stud of horses for years, that there is probably some old offender not likely to be forgotten, on account of the innumerable times he has been pulled out of bed to treat him for Colic, and where calculi are suspected; these cases are very diagnostic, and the veterinarian is quite prepared to see his old friend get a worse attack than usual, and die from obstructed bowels, *post-mortem* examination revealing, in a majority of cases, calculi.

Of the symptoms seen in cattle I can say but little, not having, to my knowledge, had a case under my supervision. In Gut-tie I believe the recognised ones that are considered diagnostic are, crossing of the hind-legs, backing, abdominal pain, no passage of fæces but discharge of bloody-covered mucus. In other cases of obstruction not caused by this peculiar lesion, I do not think there are any really diagnostic symptoms that would enable the practitioner to state definitely if the obstruction was situated in the stomach or bowels.

4.—*Treatment.*

Owing to the diversity of opinions that exist as to the treatment of this disease, and the great number of remedies that have been tried with varying success, it would be impossible, in a short paper like this, to treat the subject as it deserves ; I shall therefore merely give you an outline of the treatment which I have found most successful.

In simple cases of obstruction in horses, most probably arising from indigestion, and where there is not much pain, a dose of physic or draught of linseed oil, an ordinary dose of colic medicine, and a few enemata is often all that is necessary to effect a cure. Other remedies which I have given in these slight attacks, and which have in the majority of cases proved successful, are carbolic acid, given in two-drachm doses (along with linseed oil), and Professor Dieckerhoff's new remedy, physostigma, given hypodermically. This latter remedy, I think, will become extensively used by veterinarians ; I have only lately given it a trial, and so far the results have been favourable, but only in cases where pain has been slight ; it undoubtedly has a most powerful effect on the bowels, and in about thirty minutes after administration, in nearly all the cases I have tried it on, it has caused straining and increased peristalsis, accompanied in one or two instances with passages of *fæces*.

In severe and lingering cases, the great things to be looked after are to relieve the pain as much as possible and prevent exhaustion. Many of these cases are most obstinate, and require a great amount of patience on the part of the practitioner ; in fact, I often think that over-anxiety for the welfare of our patients is often the cause of many deaths. A good dose of physic or oil, as circumstances may direct, sedatives given in large doses, but not repeated too often (and of all draughts for these particular cases I prefer equal quantities of opium and belladonna tinctures given in a little water, or their active principles given hypodermically), hot-water fomentations to the abdomen, emptying the bladder if necessary, backraking and enemata—these remedies, in addition to carefully attending to the general comfort of the patient, are about the sum and substance of what the veterinary surgeon is capable of. In cases where the obstruction is due to impaction of the colon, and where the mass can be plainly felt per rectum, I have seen great benefit ensue from kneading the bowel carefully with the closed hand ; of course this treatment is only applicable in special cases, and even then is often disheartening.

Hot-water fomentations I greatly esteem, and where you have a patient in an exhausted condition from pain and exertion, I know of no remedies so effective. Unfortunately, the one great drawback to this line of treatment is the almost impossibility in many places of getting the necessary appliances (a plentiful supply of hot water, rugs, etc.) for its proper application, and unless the practitioner has these means at command the treatment is best left alone.

Counter-irritation, applied to the abdomen in the shape of irritating remedies, I do not agree with, as they, as a rule, only add to the animal's suffering without producing any good results.

If counter-irritation is to be adopted, I think nothing is so useful as friction applied by the aid of a good straw wisp ; this I have often seen give relief, and it is undoubtedly a valuable addition to our stock of remedies for this and many other diseases.

The after-treatment is usually simple, and may be summed up in a few words—good nursing, gentle exercise, a little stimulating and tonic medicine, and a moderate supply of easily digestible food being in most cases all that is necessary.

The treatment of our canine patients for this disease, when arising from

natural causes, is simple and effective, consisting principally of a good purgative and a few enemas. If the obstruction is from a foreign body, there is little chance of effecting a recovery without the offending substance is within reach per rectum.

In cattle, owing to the great difficulty of correctly diagnosing if the lesion is in the stomach or bowels, the treatment must necessarily be very similar to that pursued in ordinary cases of impaction, consisting of a large dose of sulphate of magnesia or other strong purgative, turpentine or hyposulphite of soda if much tympany, plenty of fluids to drink, sedatives if much pain, and attention to the animal's comfort and dieting. In cases of "Gut-tie" I believe the usual recognised line of treatment is to make an incision into the abdomen from the right side, and release the bowel by breaking down the cord with the hand. Not having had the pleasure of seeing the operation performed, I can give you no details concerning it.

A very interesting discussion followed, in which all present took part, the meeting terminating with a hearty vote of thanks to the retiring President and essayist.

COLIN GRESTY, *Hon. Sec. and Treasurer.*

SCOTTISH METROPOLITAN VETERINARY MEDICAL SOCIETY.

THE usual quarterly meeting of this Society was held in the London Hotel, Edinburgh, on November 25th, Professor Williams in the chair.

The minutes of the previous meeting were read and confirmed. The following office-bearers were elected for the ensuing year: President—Professor Williams; Vice-Presidents—Messrs. Burnett, Fairbairn, and Lewis; Secretary and Treasurer—Professor W. O. Williams; Auditors—Professor Walley and Mr. Rutherford.

Professor WALLEY then read an interesting paper on "Venereal Disease in the Lower Animals," "The Abortive Treatment of Actinomycosis," and "A New Intestinal Parasite in the Swan"

VENEREAL DISEASE IN THE LOWER ANIMALS.

Mr. President and Gentlemen,—In bringing before your notice the subject of "Venereal Disease in the Lower Animals," I may state at once that I have several objects in view. *The first of these is to inquire as to what extent our domestic animals are liable to such affections. The second is as to whether we are justified, in the present state of our knowledge, in assuming that they suffer from conditions allied to those which are characteristic of Syphilis in man. The third is to direct attention to a method of treating intractable venereal sores in the dog which is both sure and effectual.*

In reference to the first of these questions I may remind you that veterinary practitioners in this country are well acquainted with the fact that several of our domestic animals are sometimes affected with the disease known as *Gonorrhœa*, or, as it is termed in cows, "bull-burnt."

This specific form of urethritis, for such it is, occasionally makes its appearance in herds under such circumstances as to warrant the expression of an assumption that it is in such cases generated autogenetically.

I have myself seen it appear in herds in which neither the male nor the female members had ever been allowed to come in contact with other animals for procreative purposes, and I am well aware that other practitioners have seen it arise under identical conditions. In the matter of the dog I have frequently had cases brought to me in which the owners of the animals have declared that they (the dogs) had *never been in contact with any female for copulative or other purposes*. When once the disease arises in the male its spread is not difficult to explain, and I have notes of some

cases in a number of mares which came under the observation of one of my late pupils, Mr. Barclay, of Dunfermline, and which were all traceable to infection from one stallion, who, it was subsequently shown, was the subject of the malady.

In France there exists a well-known form of venereal disease, known as "La Maladie du Coit." Happily—at least, so far as I know—the equine species in this country is exempted therefrom. Neither have I ever seen any such form of disease in the sheep or in the pig.

As to how far Gonorrhœa may be looked upon as a specific disease, I may first direct your attention to the fact that the literal meaning of the word used to designate this class of affection is totally out of accord with its usual application. It signifies an excessive flow of semen—a condition sometimes observed in young vigorous dogs when excited by the near proximity of œstral bitches, and which, owing to the fact that it is accompanied by tumefaction of the sheath and swelling of the testes, is confounded with the affection usually termed Gonorrhœa. The use of the term is, however, warranted by custom, and I do not feel disposed to cavil at its application to the form of disease under consideration.

As to the specificity of Gonorrhœa, I may remind you that the researches of those engaged in inquiries as to the nature of the disease in the human subject have not resulted in any definite issue. True, the statement has been made that a micrococcus has been detected in the discharges of gonorrheal urethritis, and in those of gonorrheal ophthalmia, identical in its characters from both sources ; but there are those who assert that in urine which has undergone fermentative changes a micrococcus, recognized as *M. urinæ*, is always present ; further, inquirers—MM. Lepine and G. Roux—have recently drawn attention to the fact that when cultivations of this now well-known micrococcus are introduced into the urethral canal of male animals, and retained there for a short time, a specific urethritis is established, which extends to the bladder and kidneys, and produces death, with reproduction in large numbers of the micrococcus in the urinary products ; and of still greater importance is the further statement that healthy females confined in cages with these experimentally-infected animals become the subjects of identical conditions, and die with similar urethral, cystic, and renal lesions well developed.

Now, if these altered micrococci were the actual cause of Gonorrhœa, we should expect that in old-standing cases the bladder and kidneys would become diseased ; such, however, is never observed—at least, in my experience. That specific urethritis in animals is identical with that of man is proved by the fact that in dogs we not infrequently see well-marked gonorrheal conjunctivitis produced by contact of the urethral discharge with the conjunctiva. The infection is conveyed by the animal licking its penis, and subsequently by one of the hind feet, from which the virus is passed to the conjunctiva in the act of scratching. Mr. Alex. Grey informs me that some years ago he saw a monkey—which had contracted the disease from handling contaminated lint thrown away by a sailor on board ship—with gonorrheal conjunctivitis, the infection having been conveyed to the membrane by the creature's own hand.

So far, then, we see that Gonorrhœa affects the horse, the ox, the dog, and the monkey ; that in these animals its course is similar to that which it follows in man. But what about our second query : "Do the domestic animals suffer from Syphilis ?"

The great characteristics of Syphilis are—firstly, that it is a disease causing a chronic course ; secondly, that its most prominent lesions are indolent ulceration of mucous membranes and skin, with chronic enlargement and induration of lymphatic glands, with ulceration of the skin covering these glands.

Do we meet with such lesions in veterinary practice? Most certainly, yes—in the dog at least. Are they of a syphilitic nature and origin? I will answer this question by expressing the opinion that they are of that nature, and I think I am warranted in so doing by the characters presented by these lesions and by their course.

I am quite aware that objection may be taken to my conclusions on the ground that the chronic lesions seen in animals are only results—or *secondary symptoms*, if you like—of Gonorrhœa. So used pathologists to consider the lesions of Syphilis in man; but they have now come to look upon them as being totally different both in nature and in cause.

I know it has been said that the *chancre* of the dog differs materially from that seen in man, in the fact that its edges and base are less indurated. Granted this to be the case, may not, I ask, any slight difference in character be due to differences in structure (histologically) in the membranes in the two animals?

A chancre makes its appearances on the penis of the dog; it gradually extends its bounds; other chancres form, and in some instances the primary and secondary sores coalesce; from the surface of these sores a puriform fluid, ichorous and infective in its character, is discharged; this fluid sets up a degenerative inflammation in the skin of the thighs, the abdomen, the chin, and in fact in all parts with which it comes in contact. These sores do not yield to the local application of caustics, and in many cases are affected only to a limited extent by the internal administration of potassic iodide and mercury, unless, indeed, these drugs are pushed to a dangerous extent.

In the course of time the dog begins to arch his back, and the motion of the hind legs becomes stiff and the gait straddling. By these signs the attention of the practitioner is directed to the inside of the thigh, and he there detects a *bubo* identical in its characters with that seen in man, and, like it, ultimately associated with chronic ulceration of the skin covering it. If these lesions are not syphilitic, what are they? I leave those who deny that the disease exists in the lower animals to answer the question.

In reference to the treatment of those important lesions, *bubo* and *chancre*, I may observe that the former is much more easily dealt with than the latter. In my experience the free inunction of iodine ointment, with the application of nitrate of silver to ulcerated surfaces when such are present, quickly produces resolution, but in obstinate cases I should advise iodine irrigation or extirpation of the tumour; no harm could result from the adoption of the latter course, and seeing that there is great danger of the gland becoming a centre of infection to the system it would be the wisest course to adopt.

In the treatment of chancrous ulceration of the penis we have an infallible remedy, if I be permitted to so designate it, in castration. I am perfectly well aware that some of my scientific friends will utter an exclamation of surprise and horror when this statement meets their eyes, but one fact is worth a dozen theories, and however unscientific and unsurgical the operation may at first sight appear, it is all the same an absolutely effectual cure. In the case of valuable stud dogs the removal of the testicles would, I need scarcely say, be a matter of grave importance, as its adoption would mean annihilation of the procreative function; but in dealing with animals in which their use for stud purposes is only of secondary importance, the operation should unhesitatingly be performed if other remedies fail in effecting a cure. The first occasion on which I adopted the treatment in practice was in October, 1873, at which time I had under my care a nondescript-bred terrier (much prized as a companion by his owner), suffering from venereal sores on his penis and on the skin of the abdomen and thighs. After giving the usual constitutional remedies, as potassic iodide and mercury, and the usual local

applications as nitrate of silver and sulphate of copper, a lengthened trial, I determined upon trying the effects of castration. My reason for performing the operation was that I observed whenever I manipulated the animal chordee became very marked, and this was followed by extreme vascularity of the penis and particularly of the tissues involved in the ulcerative process. In my own mind I came to the conclusion that if priapism was prevented by castration this periodical hyperæmia would be done away with and *rest* insured to the cells of the diseased parts.

The operation was performed, the effects of it surpassed my most sanguine expectations, and the dog was quickly discharged cured.

In the early part of the present year I was asked to examine a retriever dog in whom an obstinate eruption was presented on the skin covering the chin and around the eyes. I was informed that the animal had been under the care of another practitioner for some time, but that the treatment adopted had been unsuccessful. As my attention was only directed to this eruption, I did not think of looking further for the probable cause, though I was particularly struck by the peculiar character of the sores, and unhesitatingly gave the opinion that they were of a specific nature. By the application of naphthol ointment, an agent, I may observe, of great value in some forms of skin disease, and the administration of mercury, the sores rapidly improved, and in fact were nearly healed, but several weeks subsequently the owner of the dog, noticing an eruption in the skin of the abdomen, again brought the dog to me for examination. One glance at this eruption satisfied me as to its source, and explained the origin of the sores around the eyes and on the chin; and, on extruding the penis, my suspicions were confirmed, the organ presenting on its external surface several well-marked venereal sores. These sores were treated, ultimately, with all the known topical remedies, not even excluding iodoform; and simultaneously constitutional treatment was employed, but all to no purpose, and in the end the penis presented a most loathsome and horrible appearance. With the consent of the owner castration was performed. The good effects of the operation were as satisfactory as in the first case.

I may remark that I have been informed, within the last few days, by one of my pupils, Mr. Carruthers, of Wigton, Cumberland, that during the past summer an equally successful result was obtained by the adoption of this method of treatment in the case of a colley which had been the subject of venereal sores for a considerable period.

I have often felt that this treatment, heroic though it be, might be had recourse to with benefit in the human subject. I know that sentiment would oppose itself to the suggestion, but I would ask is it not better that a man who has been unfortunate enough to contract this loathsome disease should be deprived of the means of infecting others, and be himself restored to at least a moderate degree of capacity for enjoyment of the pleasures of life than that he should be allowed to drag out a miserable existence and remain a probable means of disseminating his infirmity?

THE ABORTIVE TREATMENT OF ACTINOMYCOSIS.

In recent issues of our professional journals, I observe that Mr. J. B. Gresswell has drawn attention to the treatment of Actinomycosis by the application of phenol and iodine (iodized phenol).

I may be pardoned if I suggest that he directs attention to this combination of disinfectants in such a manner as to lead to the supposition that it is new to the veterinary profession.

In a paper read by me about two years ago at Belfast, I directed attention to the great value of a combination of iodine and phenol as a local application in infective forms of inflammation such as the inoculative lesions in

Pleuro-pneumonia and in gargarisma, and it was from observing the beneficial effects following its use under these circumstances, that I was led to advise its employment (to my pupils and to practitioners) in the abortive treatment of Actinomycosis—a disease, I need scarcely remark, essentially local in its origin, and capable of being arrested in its progress by purely local means. Amongst those to whom I recommended its use was Mr. L. Leach, who, at the meeting of the Lincolnshire Veterinary Medical Association, held at Grantham in the early part of the year, informed me that he had successfully carried out this method of treatment.

During the past summer, while on a visit at the house of my old preceptor, Mr. Kettle, of Market Drayton, I advised his assistant, Mr. Rickell, to carry out the treatment in a well-marked case in a cow. Mr. Rickell advises me that the treatment was quite successful.

The *modus operandi* of the treatment by means of which the disease is arrested is, I think, simple; both iodine and phenol are powerful fungicides and active irritants—as the former, they destroy the fungus to which the disease owes its origin; as the latter, they induce a plastic and consequently a localising or circumscribing inflammation, which has the effect of arresting the extension of the fungus and the lesions to which it gives rise. The surgical operations recommended merely facilitate the application of the potential agents to which I have alluded.

In order to ensure the proper application of remedies, I have had made, by Messrs. Krohne and Sesemann, the following instruments:—

(1) A *tongue scraper*, with which is combined (2) a *scarifier*—regulated as to depth by moveable screws; (3) an *irrigator*, in the form of a pipette; and (4) a *pair of tongue forceps*, by the aid of which the tongue can be effectually secured (a difficult matter in cattle) and its further manipulation rendered easy. The *scarifier*, I may observe, can be utilised for other purposes than the one for which it was designed, *e.g.*, for scarifying any œdematous swellings or the gums in Lampas; while the *irrigator* may be used for similar purposes in the treatment of tumours, or for exploratory aspirations.

INTESTINAL PARASITE OF SWAN.

During the summer I was asked to make a *post-mortem* examination of the body of a swan with the object of discovering the cause of its death, which had been sudden.

On laying open the small intestines I observed a number of yellowish-coloured bodies intimately attached to the mucous membrane, and having the appearance of little masses of yellow paint, but on the application of force I discovered that they were of an organic nature and attached by a pedicle to the membrane. One of my pupils, Mr. N. J. Dayle, who was standing near, suggested that they were parasites, and in removal from the intestine their true nature was readily discovered, and it was further confirmed on microscopical examination by Mr. Grey. From the characters presented, I came to the conclusion that the entozoon was a distome, but through the kindness of Dr. Aitken, I was enabled to submit some of the specimens to Dr. W. E. Hoyle for identification, and by that gentleman they were recognised as a species of *Echinorhynchus*, probably the *E. polymorphus*. Dr. Hoyle further informs me that they are found in the intestine of the duck and other water-birds, and that in their larval stage they inhabit small freshwater crustacea. They cling, he says, to the mucous membrane by the aid of a number of re-curved hooks or teeth situated on the proboscis.

In our domestic animals we are only, so far as I know, acquainted with one other species of the Acanthocephala or thorn-headed worms (to which this specimen belongs), and that is the *E. gigas* of the pig.

Whether in the swan these entozoa are the cause of much mischief or not,

may, we think, be left an open question, as, although they adhere firmly to the mucous membrane, they do not appear to induce any marked inflammatory action, nor did I observe any tendency to perforation of the bowel in the manner so often seen in the case of the analogous worm in the intestines of the pig. I also introduce to your notice specimens of a strongylus found by Mr. Percival Snaith (one of my pupils) in the stomach of a rabbit. The nematode has been recognised by Dr. Hoyle as the *S. strigosus*, of Dugardin.

Mr. RUTHERFORD made some observations on an interesting case of calculus, and exhibited the distal end of a rib with its cartilage which had been torn out of a horse's side in an accident. The case made a rapid recovery, the wound healing by first intention.

Mr. CAMERON made some remarks on "Bowel cases," and described a case of obstinate epistaxis in the horse.

The subjects were discussed by Professors Williams and Walley ; Messrs. Rutherford, Cunningham, and Cameron.

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BORDER COUNTIES VETERINARY MEDICAL SOCIETY.

(Continued from page 45.)

We now pass on to question number two—

If the veterinary surgeon is liable, how can he best protect himself?

Various forms of wording certificates have from time to time been suggested, as tending to relieve liability, such as "I do not detect ;" "In my opinion," etc., etc.

Mr. Lambert says it is said to be impossible to evade the law by the wording of certificates, and if such be the case, might not some form of printed agreement be kept by veterinary surgeons, to be signed by the person employing them before the examination of the horse, setting forth that the opinion as to soundness is only given for what it is intrinsically worth, and that the veterinary surgeon will not be held answerable for mistakes, and that he has only undertaken the examination on these terms? Unless veterinary surgeons are protected by some means or other, may not unscrupulous persons lay traps for them, if they find that lucrative damages can be obtained by a successful action? Such actions could be ruinously used to serve private malice and purposes of extortion, and young practitioners, with not much money for law charges, might be crushed by them. Sooner or later, if these actions at law are successful, medical men and veterinary surgeons will be obliged to find out means to protect themselves.

Mr. Greaves, Manchester, strongly recommends the following form of certificate, especially in high-priced animals, or where we apprehend advantage may be taken of us :—

"I hereby certify that I have this day, at the request of Mr. ———, of this city, examined a bay gelding in respect to soundness, and that I consider such horse — years old, and sound. This certificate is given after careful examination, to the best of my judgment and belief, but subject to my not being held pecuniarily liable for the opinion expressed in such certificate.

(Signed) THOMAS GREAVES."

If, he adds, the want of skill or due care is palpable, neither this or any other form of certificate can protect us ; but if we have exercised proper care and skill, this certificate is a notice to the party of the terms on which the certificate is given, and will remove all responsibility, and be a perfect protection.

This is another form of certificate which I understand is used in the South :—

“CERTIFICATE OF EXAMINATION.

“VETERINARY ESTABLISHMENT.

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“At the request of.....
I have this day examined.....

“Signed....., M.R.C.V.S.

“This certificate is given after careful examination, but I do not hold myself pecuniarily responsible in any way.”

There is still another means of protection, and that is to join the National Veterinary Defence Association ; this is not only a means of protection, but also of defence.

Thirdly.—Is the usual fee of 10s. 6d., for examination, a fair and reasonable remuneration for risk, responsibility, and service rendered ?

Mr. Lambert, in further commenting on Mr. Fleming’s paper, says—If the veterinary surgeon is liable for his mistakes, whether wilful or not, I say you will have to revise your fees. If you are examining a horse worth 300 guineas for half a guinea, you are laying 600 to 1 that you are right. I venture to say that no prudent man, if held legally responsible, will long be able to lay such absurdly disproportionate odds, for we all know that the most careful and experienced veterinary surgeons cannot sometimes avoid mistakes in the examination for soundness.

Mr. Moore, London, says he considers the fees for examination as to soundness very inadequate, and is of opinion that the fees should be regulated in proportion to the liability, and on some percentage scale, as in many other professions ; for instance, if you take the opinion of an architect regarding a house of the value of £100, you would be charged £5.

Now, gentlemen,* I have brought before you the main facts bearing upon our responsibility in examinations as to soundness, and have, as far as possible, avoided commenting thereon, or advancing any opinion on the points introduced. You will observe that argument could be adduced for or against any one or the whole, and it is now for the meeting to decide, if possible, what responsibility we do incur. I venture to think, gentlemen, it is a subject which will bear all the earnest thought and careful consideration that you can bestow upon it.

I will ask you to discuss the questions *seriatim*, as the two last will very much depend upon the decision on the first, and I hope every member will freely and honestly give his opinion.

I will conclude in the words of Mr. Greaves, that the discussion on this subject will do our profession a great service if we only arrive at a clear and logical conclusion—a conclusion which will not only commend itself to our senses, but which will, at the same time, be legally sound, and a safe protection.

Mr. BELL, in his remarks, contended that if a man exercised ordinary care and reasonable diligence in the examination, but made a mistake, he ought not to be held liable in damages ; and suppose a veterinary surgeon, in giving his certificate, condemned an animal as being unsound when it was not, was he to be held responsible by the vendor for having damaged his horse ?

Certainly not ; he simply gave his opinion. We should simply have to be careful, to use the greatest amount of care in the examination, and do our duty to our clients in the very best possible way. If we should happen to overlook some disease, we were not to be held liable. This sometimes happened upon a hasty examination. As to the age, I think that veterinary surgeons should certainly be able to state the age, and not certify that an animal is younger than it really is, thereby making it more valuable in the eyes of the purchaser. As to getting the law officers of the Crown to introduce some protection for us, he thought we would not be favoured any more than other professions.

Mr. TALLENTIRE did not think they could alter their position at all.

Mr. HARRISON : Common sense told us we would be responsible if we made very gross mistakes. Our actions resembled those of the railway companies : it would depend upon evidence. If we exercise thorough care, and we examined the animals thoroughly, and could produce evidence to that effect in any action brought against us, we would have a very good chance of succeeding.

Mr. CARLISLE thought no form of certificate would shelter us. Some safeguard should be allowed the public to protect themselves from dishonest veterinary surgeons, who were still common enough.

Mr. BELL produced a copy of a certificate which had been given by a veterinary surgeon, and characterised it as a disgrace to them. It was such ignorance as was shown there which brought the profession into disrepute. He also referred to two cases in which a veterinary surgeon had certified two horses to be sound when they were not.

Mr. CARLISLE thought the person who made out the certificate produced was not qualified.

The CHAIRMAN remarked on the unfairness to purchasers of horses older than they were stated to be in the certificate.

Mr. CARLISLE : We have nothing to do with the value of the horse we examine.

Mr. THOMPSON suggested that the charge for examination might be based on a sliding scale.

Mr. CARLISLE said veterinary surgeons, when examining a horse, were very often asked the value, a very improper question. We sometimes place ourselves in very unpleasant positions by answering it. He contended that veterinary surgeons should be liable for want of care or skill. Certificates had done more harm to the profession than anything else, he thought. In actions for damages it was remarkable that so many eminent men should be of different opinions.

The CHAIRMAN : People have got it into their heads that they can get veterinary surgeons to say anything.

Mr. THOMPSON commented on the bribery in the profession, which, he said, was still very common.

Mr. BELL also spoke of the corruption in the profession.

Mr. DONALD was surprised to hear of the extensive corruption, and hoped the rising generation were an improvement in that respect. The gentlemen engaged in the actions quoted in his paper were, he thought, above suspicion, though men of the highest eminence were ranged on opposite sides, giving different opinions on the same facts ; and who would say that these men were not giving their honest opinion ?

Mr. HARRISON thought that if a man overlooked a spavin or a splint he ought to be sued. He thought himself that unless negligence was proved, that the veterinary surgeon had not carefully examined the horse, he could not be injured otherwise than by being run into great expense by an action being instituted against him ; but we ought to have some exact knowledge of the extent of our liability. In the dentition case referred to, Professor Williams supported the man against whom damages were given.

Mr. BELL : The National Association came forward in that case "to help a lame dog over the stile." They stretched a point.

Mr. CARLISLE recommended them to take plenty of time in examination ; and with ordinary skill, and giving a certificate according to their opinion, then he did not see how a man could be interfered with.

Mr. DONALD : Who is entitled to decide what is negligence and want of skill, when in every case which comes before the Courts men equally eminent are on different sides ?

The CHAIRMAN, in summarising the discussion, said it appeared to be the general opinion that unless they showed negligence or ignorance they were not to be held liable.

With regard to the second question raised by Mr. Donald's paper—"Is the fee charged for examination sufficient?"—

Mr. CARLISLE thought it was.

Mr. HARRISON agreed.

Mr. CARLISLE : Some well-known men get a guinea, which was sometimes little enough.

The CHAIRMAN thought 10s. 6d. not enough. He always got £1 1s. 0d. In the case of a valuable horse, say worth £80, the lower fee was not enough.

Mr. CARLISLE said people would not pay a guinea.

The CHAIRMAN : It is greatly as they have been educated. If Mr. Carlisle examined half the number of horses, and got double his usual price, he would lose nothing, and save himself some trouble.

Mr. DONALD thought £1 1s. might be charged. He knew of no other expert who would give his advice for such a meagre sum as 10s. 6d., and the veterinary surgeon had extra risks, as the subject on which he gave his opinion was constantly changing.

Mr. BELL thought they would have to take districts into consideration. In London some men commanded a better fee than others ; and in Ireland some charged a guinea fee, others 10s. 6d. He thought their clients would not be disposed to give more than 10s. 6d. at home. In London there were men glad to examine horses at 10s. 6d. Others wouldn't do it under £1 1s.

Mr. DONALD inquired if a man could examine a horse properly at an auction mart.

Mr. BELL said when he did examine a horse there he worded his verbal certificate thus, "I have examined this horse, to the best of my ability, at the sale ; and that I should have greatly preferred to have had more time, and you take the responsibility as it is." I consider you ought to have an opportunity of seeing the horse put by, and taken out again.

Mr. CARLISLE : I never examine a horse at the mart.

Mr. DONALD wished to know if an action could be founded on the qualified certificate mentioned.

Mr. BELL : He is liable. I would not give a written certificate.

Mr. DONALD : A verbal certificate would be equally binding if there were a witness. Eminent men hold you cannot protect yourself by qualifying remarks.

CHAIRMAN : If you thought the horse required more time, then you must give more time.

Mr. THOMPSON thought the fee (10s. 6d.) not sufficient.

Mr. THOMPSON moved a very hearty vote of thanks to Mr. Carlisle for his paper, which, he said contained a new and original idea, one which had never been on paper before ; and to Mr. Donald for his valuable paper.

Mr. HARRISON seconded the motion which was carried unanimously.

Mr. CARLISLE and Mr. DONALD returned thanks.

Mr. CARLISLE proposed a vote of thanks to the Chairman. Seconded by Mr. DONALD, and carried. The CHAIRMAN returned thanks, and the proceedings closed.

J. DONALD, *Secretary.*

GLASGOW VETERINARY COLLEGE.

THE Winter Session of this Institution began on 28th October, when the Introductory Address to the students was delivered by Dr. M'Kendrick, Glasgow University. The proceedings took place, as usual, in the Lecture Hall of the College, at 83 and 85, Buccleuch Street, and there was a large attendance. Principal M'Call occupied the chair.

The address was as follows :—

Gentlemen,—I had great pleasure in acceding to the request of your Principal to deliver an address at the opening of the session, because circumstances have led me to take a deep interest in veterinary science, and I am to some extent familiar with the course of study followed by veterinary students. About ten years ago I held the office of Lecturer on Physiology in the Dick Veterinary College in Edinburgh, and I always look back on my connection with that college with feelings of gratitude, because the studies requisite for the position led me to take a broader view of physiology than I would probably have done had my experience as a teacher been confined entirely to students in our medical schools. My connection with the Dick College was also the channel by which I became connected with an important trust. The late Miss Dick, sister of Professor Dick—a man of indomitable energy and of great power, and the founder of the college in Edinburgh—appointed Professor Turner, Professor Chiene, Mr. Middleton Rettie, Advocate, and myself her trustees. The Trustees are directed to allow the funds left by Miss Dick to accumulate until they reach a certain amount, when they are to be divided into two equal parts, one part, £10,000, to be devoted to the furtherance of veterinary science in Scotland by aiding the Dick Veterinary College, and the other part, £10,000, to be used for founding, in the University of Edinburgh, a chair of Comparative Anatomy, or of Surgical Anatomy. The money is steadily accumulating ; and when the provisions of the Trust are carried into effect, they cannot fail in having a most important influence on the progress of veterinary science, and also on the progress of anatomical science generally.

I have now, in the name of the Principal and Professors of this College, to give you a warm welcome, and to express the hope that you will enter on your duties with earnestness of purpose. You have chosen a highly useful profession, and in preparing yourselves for it, you will pass through a course of study which is full of interest, whilst it is also a healthy mental discipline, calculated to develop many of the best parts of a man's nature. You will get a glimpse into the world of science ; the chemist will teach you not a little regarding the chemical and physical laws that regulate every-day phenomena, and regarding the properties of the matter of which this universe is built ; the botanist will lay before you many of the wonderful processes of plant life, and will awaken your interest in the flowers of the field ; whilst the anatomist and physiologist will discuss with you the still more remarkable processes going on in the animal body—processes, a knowledge of which not only involves the highest problems of physical and chemical science, but lies at the root of some of the most profound questions in philosophy. Your scientific training, therefore, apart altogether from the study of the more technical branches of your profession—such as veterinary medicine and surgery—is fitted to extend your mental vision, to enlarge your ideas, to awaken thought, and to stimulate inquiry ; and I confess I do not envy the man who can pass unmoved through such a course of study. To appreciate it, however, let me advise you to enter on it with some enthusiasm. Do not think of science as a barren collection of facts, or as a certain amount of knowledge that must be acquired so as to aid you in the more practical studies. It is all this, but it is much more—it is a

privilege granted to man to see into some of the wonderful processes of the universe. Cultivate a habit of reverentially looking at these things; view them as the devout theologian regards the solemn truths of his science; ever remember, that behind all the facts and phenomena known to man, there are many more of which he knows little or nothing. Such a frame of mind, whilst it enables a man thoroughly to enjoy the study of natural phenomena, will save him from the conceit and rash dogmatism which have not unfrequently brought opprobrium on science and on its followers.

When you pass to the study of the diseases of animals and the means of remedying them, you enter on a field that is most closely connected with the domain of human medicine and surgery. I do not require to enlarge on the usefulness of the veterinary profession. It has the charge of the health and well-being of many millions of animals, which constitute a large portion of the wealth of the nation. It is called upon not only to treat the diseases to which they are liable, but also to ascertain the cause of all disease, more especially of those epidemics which ravage our flocks and herds. It thus includes both veterinary medicine and surgery, and the hygiene of the domestic animals. It deals not only with the cause and consequences of disease, but also with its prevention. Disease amongst our domestic animals always represents a certain pecuniary loss. This loss has to be borne, not only by the rich, but also by the poor. For example, any disease which either lessens the number or depreciates the quality of those animals furnishing food to the community, increases the price of meat, and consequently puts it out of the power of many to obtain it. The value of the live stock of this country is enormous, and constitutes a considerable portion of the wealth of the nation. It therefore becomes a matter of the greatest importance to every member of the community, that veterinary surgeons, who are the advisers of the public in these matters, should be thoroughly educated and prepared for their work. In addition to these considerations, there is also the duty we owe to all animals of promoting their health and well-being, and of relieving them of suffering and pain.

To meet these demands, the veterinary practitioner should receive the same careful education as those who engage in the treatment of disease in the living man. There is a popular idea that the veterinary surgeon does not require to be so well informed as he who deals with the ailments of man. This idea no doubt arises from the higher value justly attached to human life. But if we attempt to treat disease at all, the kind of work to be done in both departments of practice is essentially of the same nature. The structure and functions of the bodies of domestic animals are much the same as in the human being. The diseases to which both are liable present remarkable similarities. The medicines which are found to be useful in the one usually produce beneficial effects in the other. It may be asserted also that the diagnosis and treatment of diseases in the common animals are even a more difficult accomplishment than the same kind of work in man, inasmuch as the patients of the veterinary practitioner can give no direct information regarding their feelings. In this respect practice among the domestic animals resembles the treatment of children, who cannot tell the physician how they feel, nor assist him much in detecting the disease from which they suffer. In treating the dumb animal, the practitioner must therefore depend on objective symptoms. He must have cultivated the practice of rapid and accurate observation. He must collect his information by a careful physical examination of the parts supposed to be the seat of the disease; and he must call to his aid all the appliances and instruments—such as the stethoscope, microscope, and thermometer—which are now used in modern medicine.

Consideration of those facts will at once show the necessity of having our veterinary practitioners thoroughly educated men. They ought to be conver-

sant, equally with students of medicine, with those sciences on which the art of medicine is founded ; and they ought to have equally good opportunities of acquiring a practical knowledge of the profession. This ideal is arrived at in the institution to which you have come. I have looked over the curriculum of study of this college, and its fulness and thoroughness have struck me as remarkable. All I shall say of it is that you must work hard to get through it successfully ; it will tax your energies, and try your mental powers ; but I have no hesitation in saying that if you pass through it successfully, you will start in your profession with a large stock of theoretical and practical knowledge and be ready for your work.

Molecular Physiology.

The subject in your curriculum which naturally attracts my attention most is physiology, and perhaps you will permit me to refer to it with some degree of fulness, and thus, in discussing one topic, follow the example of those who have delivered opening addresses in this place in former years. In tracing the history of any science one soon discovers that there are times when, in consequence of a great discovery, or of a wide generalisation, it is necessary to recast the whole subject, or at all events to view it from a new standpoint. The introduction of the atomic theory into chemistry, the recognition of the great law of conservation of energy in physics, and the adoption of a theory of evolution in biology in its various departments, are examples of such epoch-making events. Again, a science occasionally makes a new start. She leaves the old and well-gleaned fields and explores new territories, adding to her stores at every footstep. Such happened in chemistry when the investigator first went into the domain of organic compounds, in physics when, as we have seen even in our own day, the field of electricity has been traversed by a thousand workers, and in biology when the naturalist turned his attention to the study of development or embryology. Some such change is about to happen, I believe, in physiology ; at all events so many new facts have been collected in recent years, by the experimental mode of inquiry, as to make it necessary to review the old ground and to recast some of our older notions. Let me illustrate what I mean.

Physiology, as you know, is intimately connected with anatomy, and most people would at once say that anatomy was the older science. This is true in one sense, but not in another, as it is evident that men, in long bygone ages, must first have watched the movements of animals, the taking of their food, and other processes before they began to dissect. They took the body of the animal to pieces to see how it worked. Thus anatomy arose, and its study is justly regarded as preparatory to understanding all vital actions. In later times, anatomists have devoted more and more attention to the study of form and structure, apart altogether from a consideration of the processes by which these forms have been evolved. This department of science is now called morphology, and as Professor Foster has well said, "Were the whole world suddenly petrified, or were a spell to come over it like that imagined by Tennyson in his 'Day Dream,' but more intense, so that not only the gross visible movements, but the inner invisible movements which are at the bottom of growth were all stayed, the morphologist would still find ample exercise for his mind in investigating the form and structure of the things which had been alive, and which still differed from other things in their outward lineaments and internal build."—*Encyclop. Britann.*, 9th ed., art. *Physiology*.

Physiology now deals with the actions of living beings on their surroundings and with the actions of their surroundings on living beings, and it considers structure only so far as it illustrates or explains action. The progress of the science has shown, however, that there are numerous

problems on which a knowledge of structure throws no light. Thus the movements of the body are effected by muscles, and we study anatomically the framework of bones, the joints, the arrangement of the tendons, and their attachment to the bones, and we obtain, by a study of these mechanical arrangements, an idea of how any particular movement is accomplished. But the fact remains unexplained that the movement is effected by a contraction of the muscular fibres by which their ends are approximated, and we are obliged to ask the question, Why do the muscles contract? We find that muscular matter will contract on direct irritation, but that the usual kind of stimulus causing it to contract is some kind of change passing to the muscle along the nerves. This leads us to investigate the actions of the nerves, and we ascertain that the change coming along the nerve to a muscle, which causes it to contract, originates somewhere in a brain or spinal cord, or nerve centre, as it is termed; further, we find that the change in the nerve centre may in turn be excited by influences coming to it from the periphery of the body along so-called sensory nerves, and that these influences may, by acting on the nerve centre, originate muscular movements at once, or these may be long delayed. Then, again, we arrive at a knowledge of the fact that many of the changes in these nerve centres are connected with consciousness, and that we must conceive a nerve centre as frequently in a state of extreme molecular agitation or change, currents flowing in or passing out, connecting the sensory surfaces with the muscular and other apparatuses, and welding the whole body into one harmoniously working machine.

In the next place, we find that food and air are necessary to a living being. The body of a living being is composed of complicated and unstable chemical substances, capable of being oxidised, and of being reduced by oxidation to simpler and more stable compounds, with a setting free of energy. These more stable compounds are water, carbonic acid, some nitrogenous compounds such as urea, and salts. Such substances are produced from organic matter, whether it be quickly oxidised by burning, or more slowly in the animal body, or still more slowly in the changes that occur when a body is allowed to decay in the earth. During life, these simple compounds are being constantly produced by oxidation processes, and thus "the animal body dies daily in the sense that at every moment some part of its substance is suffering decay, is undergoing combustion; at every moment complex substances full of latent energy are by processes of oxidation reduced to simpler substances devoid of energy, or containing only a little." Thus we arrive at the astonishing conclusion that "every act of life is the outcome of an act of death." Every contraction of a muscle, every beat of the heart, every action of the nervous system, every formation of something in the cell of a gland, are connected with the splitting up of complex molecules into simpler compounds, or, in other words, with the crumbling down, in a molecular sense, of the tissue. All the energy thus liberated ultimately is set free either as heat or motion in the form of muscular work. Thus energy is being continually expended, and to make up for this we take food which is a mixture of highly complex energy-stored bodies, and we breathe in oxygen whereby the oxidisable matters are reduced to simpler compounds, and the potential energy thus set free does work. But the food is not oxidised simply in passing *through* the body; the compounds formed from it become, for a time, part of the living matter itself.

Thus we see that the ultimate problems of the physiology of the present day are concerned with the changes in living matter on which the phenomena of life depend. This is the characteristic of the science as it at present stands. The first physiologists attempted to explain the phenomena of the body by assuming the existence of animal and vital spirits. The

animal spirits were more closely connected with the phenomena of animal life, whilst the vital spirits were common both to animals and plants. By-and-by it was found that many phenomena could be accounted for without such agencies. The next great step was the recognition of the uses of organs of the body, and the body was conceived to be built up of a series of machines, all more or less independent, and still all co-operating in the general life. The work done by an organ was termed its function. The value of this line of thought was so great that it soon dominated physiology, and in the minds of many it still reigns supreme. Further, it must be pointed out that this view of organs and functions has produced brilliant results in physiology. Thus the doctrines of the circulation of the blood established by Harvey are the outcome of a study of the mechanism of the heart and blood vessels, considered as organs, and many other problems, such as the movements of respiration, the mechanism of voice, etc., are capable of solution by the application of mechanical principles to anatomical facts. The anatomical mode of inquiry, however, did not solve the whole question. Thus, when applied to the case of the liver, it showed only the arrangement by which blood was carried to and from that organ, and the ducts for carrying away the bile. The function of the liver was therefore said to be to secrete bile, and for many years this was considered to be the only function of that important gland. Another example of the failure of the anatomical method alone is that for many years no function whatever could be assigned to certain organs, such as the spleen, a large and complicated structure, existing apparently without a purpose.

The next great conception that harmonised with and was the complement of the doctrine of organs and functions, was the cell-theory which defined the cell as the physiological unit, and all functions of an organ were explained as being the aggregate of the functions of the individual cells forming the organ. It was hoped that by a study of the arrangements of cells, their forms, sizes, and general properties, a knowledge of functions would be obtained.

The purely anatomical mode of inquiry received its first shock by the discovery, about the middle of this century, by Claude Bernard, of the glycogenic function of the liver. He showed that the secretion of bile was not the only function of the liver, but that it formed a large quantity of starchy matter, to which the name of glycogen was given. This discovery could not have been made by the most diligent scrutiny of the cells of the liver with the highest microscopic powers, and a mere knowledge of the arrangements of the gland as regards blood vessels, ducts, and cells would have left this function unknown; while the discovery might have been made by one having no knowledge of the anatomical structure of the liver.

As science advanced, the definition of a cell laid down by the founders of the cell theory had to be modified. The original definition of a cell was a small body having a cell wall, cell contents, and a nucleus or kernel, and it was assumed that here we had the fundamental structure with which the phenomena of life were associated. But discovery showed that these phenomena might be manifested by a mass of matter destitute both of cell wall and of nucleus, and consisting only of a little mass of jelly-like matter, containing a few granules. Then arose the theory of protoplasm. The matter called protoplasm was now regarded as the material basis of life, and the great step was taken of throwing overboard all conceptions of life as the outcome of organisation, and the mechanical result of structural conditions. This is the view of physiological processes now generally held. It aims, as has been said, at putting "physiology on the same footing as physics and chemistry, and regards all vital phenomena as the complex products of certain fundamental properties exhibited by matter, which, either from its

intrinsic nature, or from its existing nature, or from its existing in peculiar conditions, is known as living matter ; mechanical contrivances in the form of organs serving only to modify in special ways the result of the exercise of those fundamental activities, and in no sense determining their initial development." (Foster *op. cit.*)

Further research, however, has shown that there are various kinds of protoplasm, and that even protoplasm, when examined by special methods, affords indications of structure. It is not a homogeneous jelly, nor even a granular jelly, as has been described, but it contains a fibrillar net-work, in the meshes of which there is some kind of matter. It is not, however, strictly correct to speak of this fibrillated arrangement as indicative of structure, or at all events of a permanent type of structure—because it is not constant. It varies much from time to time even in the same mass of protoplasm. This amorphous matter, as found in the amoeba, is capable of manifesting the phenomena of life ; and in the white blood corpuscles it moves ; it assimilates dead food and raises it to the level of living matter ; it is the seat of chemical changes of a very active character, and in particular it has powerful reducing properties. It has been shown that the protoplasm of vegetable cells has the power of reducing salts of silver, and on this chemical phenomena Loew and Bokorny have advanced the view that living protoplasm contains a chemical compound of the nature of an aldehyde. Its characteristic condition is one of incessant change ; molecular processes are constantly going on in it, leading to the upbuilding or the downfalling of its substance. Whether it be a single highly complex chemical substance, or a number of such substances, we do not know ; but even if we suppose it to be one substance, it probably does not exist for more than a very brief space of time in the same condition. At one instant it is made, and in the next it is unmade. It is built up of matter that was once dead but now is alive. Dead food probably rises by a series of steps to the condition of living matter ; this living matter is protoplasm ; and then the descent on the other side begins, which ends in the matter being split up into the comparatively simple substances which are what we may term the waste products. As Foster puts it :—"Further, the dead food, itself fairly but far from wholly stable in character, becomes more and more unstable as it rises into the complex living material. It becomes more explosive, and when it reaches the summit its equilibrium is overthrown, and it actually explodes. The whole downward stair of events seems in fact to be a series of explosions, by means of which the energy latent in the dead food, and augmented by the touches through which the dead food becomes living protoplasm, is set free. Some of this freed energy is used up again within the material itself in order to carry on this same vivication of dead food ; the rest leaves the body as heat or motion." (Foster *op. cit.*)

The fundamental properties of protoplasm then are (1) *assimilation*, or the power of converting dead food into its living self ; (2) *movement*, or change of form—*contractility*, as it is usually called—arising from internal disruptive or explosive changes (using the term "explosive" in the molecular sense) ; and (3) *irritability*, or the property of responding to stimulation by changes so minute as entirely to escape the observation of the unaided senses. But these fundamental characteristics are manifested in different degrees by different specimens of protoplasm, and even by the same protoplasm at different periods of its life. Thus the changes occurring in one kind of protoplasm may be such that the decompositions result in energy being set free only in the form of heat, no visible changes of form ensuing. This is the case with the protoplasm of the nervous tissues and secreting cells. Again, in another specimen of protoplasm, such as exists in the muscular and other contractile tissues, the energy may be set free both as

motion and heat, and the most striking characteristic of the molecular change is movement. It is the business of the physiology of the future to determine what it is that causes one kind of protoplasm to differ from another. If it depended on internal structure, that must be of a molecular character, which no scrutiny with the highest microscopical power can ever detect, as the optical method of inquiry has probably come near its limits. It is true that, as the protoplasm manifests more and more one or other of its fundamental properties, features of a structural character may gradually make their appearance, but even these seem to be of a subsidiary character, and not to be the real cause of the specific kind of action. Thus contractile tissue may, by long-repeated activity and specialisation of function, take on the structural characters of striated muscular fibre, but these characters are not essential to the contraction of the fibre. Many fibres contract that are destitute of the structural characteristics of striated muscle. Nor is even the existence of matter in the form of a fibre necessary to contraction. The fibre contracts because it contains protoplasm having the fundamental property of changing its form, owing to molecular changes excited by a stimulus. Thus we gain the position now reached by some of the most profound thinkers in physiology, that protoplasm exists in differentiated varieties, whilst each variety still retains more or less of the general properties of protoplasm. In other words, whilst there is variety in the results of protoplasmic life, there are underlying in all the kinds of protoplasm the fundamental characteristics of the primitive substance.

I might illustrate this by tracing the differentiation of the protoplasm of the cells forming the primitive layers of the embryo, showing how the various tissues are built up, and from these the mechanisms we call organs, and pointing out especially that the functions of all these organs depend on the activities of the protoplasm contained in them. Hitherto the attention of physiologists has been largely occupied, and very properly occupied, with investigating the general mechanism of these organs. For example, we are now acquainted with the arrangements of the circulation of the blood, viewing the heart as a contractile force-pump driving the blood through a series of elastic and contractile tubes and guided by valvular structures. There is probably not much to be done in this direction. But there still remains the problem of the molecular changes happening in the wall of the heart itself. What is the cause of its rhythm? What relation has its rhythm to the activity of the clusters of nerve cells in the wall of the heart itself? Again, we know that the blood is driven through the tissues and organs, and that each element of living tissue selects from it the matters it needs for its growth and activity, but there are many occult molecular processes happening in the structures separating the blood from the tissues and in the absorption by the tissues of the nutrient materials. We have been too much in the habit of regarding these, or some of these, as simply physical processes like endosmose and exosmose, forgetting that the structures through which the nutrient materials pass are composed of living protoplasm, which so modifies the physical process as to make it unlike what would happen if the membrane were dead.

Already we are getting some insight into the molecular processes concerned in life. This is well illustrated by the changes in the cells of a secreting gland. Take, for example, the pancreas. The ultimate structure shows a number of cells grouped around a space at the end of a canal, which is the beginning of one of the ducts of the gland. Each cell is a minute spheroidal body having a nucleus and composed of protoplasm. So far as the nucleus is concerned, we may put it aside, as it appears to have nothing to do with the secretive activity of the cell, and to be concerned only in its reproductive processes. One side of the cells is bathed in a fluid called

lymph, which has transuded from the capillaries in the neighbourhood ; the other side is free and projects into the space. Secretion consists in the accumulation of fluid in this space, and as it is formed it is carried away by the ducts of the gland. Now few, if any, of the elements of the secretion exist preformed in the blood ; they must then be produced by the activity of the cells of the gland. The cells are nourished by the lymph, and they grow and undergo various remarkable changes that have been observed only during the last two or three years. It has been noticed that in the cells there are periods of rest alternating with periods of activity. During the period of rest, the cell grows and increases in size, and this is owing not so much to increase in the network of the protoplasm, as to an accumulation of material in the meshes of the network. It has further been noticed that as the material in the meshes increases, the network diminishes, indicating a conversion of the substance of the network into the matter in the meshes. Sometimes this matter may be seen as little granules, and the granules collect chiefly at the side of the cell next the lumen of the canal. During active secretion, these granules disappear and the cell diminishes in bulk ; the living protoplasm relieves itself, as it were, of its hoard of stored-up material ; in the act it may still be growing to some extent, but the growth of protoplasm is chiefly during the period of rest. But a further discovery has been made. It has been ascertained that the ferment matter in the pancreatic juice, which is its chief chemical characteristic—a substance called tripsin—does not exist in the cells of the gland. The particles in the cells I spoke of are not particles of tripsin, but are particles of a material that readily yields tripsin. This material has been called tripsinogen, or generator of tripsin. The order of events would seem to be, (1) the growth of protoplasm from materials supplied by lymph ; (2) the conversion of portions of this protoplasm into tripsinogen ; (3) the ejection of the tripsinogen ; and (4) its conversion, probably in the very act of ejection, into tripsin. Thus we get a glimpse into the processes going on in this wonderful little laboratory. Possibly we see only several of the steps of the process. From the matter in the lymph to the protoplasm of the cell there may be many transient stages, and again from the fully formed protoplasm to the discrete particles of tripsinogen there may be another series of steps. Another view is that the protoplasm by one magical stroke, as it were, converts the material of the lymph into living matter, and then, in an instant, there may be the degradation of a portion of the protoplasm into tripsinogen. Of this we at present know nothing ; but the evidence points in the direction I have indicated.

Another illustration of molecular action is found in the study of the changes in muscle when it contracts. Here we have, not secretion, but a change of form—contraction. The evidence is gradually accumulating in favour of the view that this contraction is due to a sudden change (of the nature of a decomposition) of a contractile matter in the protoplasm of the muscle cell. When a muscle contracts there is the evolution of carbonic acid, the muscle becomes acid, from the formation of a special variety of lactic acid, and there is evidence of other chemical changes. Do these substances come from the protoplasm of the muscle cell directly ? There are facts supporting a striking analogy with the changes happening in the secreting cell, namely, that the protoplasm of the muscle cell forms a special contractile matter, and that this contractile matter explodes, or, in other words, is torn to pieces in a molecular sense, when a muscle contracts. The products of the decomposition are ejected ; the protoplasm again constructs the contractile substance at the expense of its own material ; and the muscle cell is soon ready for another contraction. The energy is set free both as motion and heat, whilst in the case of the secreting cell it appears as heat only.

There is every reason to believe that molecular changes of a similar kind occur in the nervous system. We know next to nothing of the chemical changes happening in nervous tissue, but a study of the nature of the nervous discharges that stimulate muscular fibre to contract, and a review of what is known of the order of events in various kinds of reflex actions, all favour the view that these phenomena depend on molecular disturbances of a chemico-physical kind. When a nerve is irritated, some change is propagated along it to the muscle; this change acts on the matter forming the nerve endings; and the changes in these, in turn, set up the molecular explosions in the contractile stuff of the muscle cell. Again, when a sensory impulse reaches a nerve centre, it may stop there—that is, its energy does not seem to be sufficient to do more than set up changes in the substance of the cell; but in other cases the change in the nerve cell may be rapidly propagated to other groups of nerve cells, and these, in turn, may originate impulses causing muscular contractions. The time occupied in these processes, the occurrence of fatigue, the necessity of repair, all point to the occurrence of molecular changes.

Living matter, then, must exist in many different conditions. The protoplasm of a muscle cell is not the same as that of a secreting cell, and both differ from the protoplasm of a nerve cell. Again, the protoplasm of a contractile cell from a sheep differs from that of a man, and there may be varieties even in individuals of the same species. And yet in all the kinds of protoplasm we have, in a subsidiary way, some of the fundamental characteristics. All kinds of protoplasm have the power of assimilation, and all have the property of irritability. What, then, we mean by living protoplasm is that state of matter which does not ascend higher in the scale of molecular complexity, but breaks down on stimulation into simpler compounds. It is matter in a state of incessant change, and when it is killed it ceases to be protoplasm. According to this view, protoplasm exists only for an instant, or, at all events, for only a brief space of time. The materials we get from a bit of dead muscle, albumen, sugar, fat, saline matters, water, were never alive as such; it is absurd to speak of living albumen; these are matters formed on the death of the protoplasm, or they have been derived from complex bodies that have once been protoplasm, possibly existing in the meshes of the network at the time of the death of the protoplasm. This view of life also gives some conception of how transient it is. The words of Keats may be appropriately used:

“Stop and consider! life is but a day;
A frail dewdrop in its perilous way
From a tree’s summit.”

These considerations all bear upon our conception of what life really is. Few, if any, physiologists would assert that life is added to matter, a force, an ethereal intangible something which eludes our thoughts. Nor is it enough to say that it is a property of protoplasm. Is it not nearer the truth to say that it is a special condition of matter? Physicists now consider the properties of things as expressions of internal movements, and in like manner it seems to me we get a conception of the vital state when we consider it as a mode of motion. The phenomena of life are manifested by matter in a condition of intricate molecular movement, the results of which we see in histological structure and in specific function. Arrest the movements by the removal of water, as in dried seeds and dried infusoria, and all the phenomena of life cease. Stop the movements by cold and the organism becomes dormant, but the molecular machinery is ready to start again when it is raised to a proper temperature. Heat the organism too much and the molecular movements are so altered, or disturbed, or quickened, as to be incompatible with the living state, and the machinery may fly to pieces. The

properties of different kinds of protoplasm depend, according to this view, not on the properties of the chemical elements or chemical compounds which we can extract from it after it is dead, nor on the play of the ordinary physical forces, but on the particular kinds of molecular motion occurring in the living stuff. Thus life expresses a dynamical state, and may be spoken of as a property of matter in the same way as we use the term to designate heat, elasticity, or electricity. It cannot be called a mode of energy, because we cannot bring it within the great law of conservation of energy. What I contend is that vitality cannot be entirely explained by an interplay of the known modes of energy that we call physical. It is a condition of matter *sui generis*. And may we not hazard the conjecture that it is vain to speculate on the origin of life, just as vain as to inquire how, from the primitive atoms which are believed to construct the universe, the movements of matter we term heat or electricity first originated? It has always appeared to me to be a reasonable hypothesis, apart altogether from the evidence many hold as coming from supernatural sources, that the Creator first started this whirl or intricate dance of molecular motion we now call living matter, and that since that time living matter has come from living matter only.

I have led you to-day into these advanced problems, as showing the path physiology is pursuing, and as an indication to you of the deep interest of the subject. My friend Dr. Limont will, during the session, lay before you many facts which you can afterwards think of in the light of these speculations. You see the high course of study before you. I trust that the session which you have begun will be characterised by efficient teaching, diligent study, and high moral tone. Without these, failure is inevitable—with these, success is certain.

At the close of Professor M'Kendrick's address, the Gold and Silver Medals gained during the past year were handed to the successful students by Principal M'Call, who announced that of 118 students examined during the past session by the Board of Examiners appointed by the Royal College of Veterinary Surgeons, 88 students had been successful in passing the examination. (Applause.) He intimated that he had founded a Free-studentship for the son of a deceased or indigent veterinary surgeon, and had made arrangements for a bursary of £20, or a Gold Medal of that value, to the student who obtained the highest aggregate marks in his first and second examinations before the Board of Examiners. (Applause.)

Dr. MARWICK said : Gentlemen,—In compliance with the request which your Principal has just made, I rise to propose a cordial vote of thanks to Professor M'Kendrick for his most interesting address. I am too sensible of my inability to speak in adequate terms of this address to say more in regard to it than to express the hope that we may, ere long, be permitted to have it in print for private perusal and consideration. Its interest, obviously, is not limited to the student of medicine—it appeals to every thoughtful man. In being addressed to you here it recognises and emphasises the fact that the profession to which you are to devote yourselves has much in common with that of the physician and surgeon. We cannot shut our eyes to the fact that in every department of professional life, the preparation which was accepted as sufficient thirty or forty years ago, does not meet the requirements of the present day. In the profession with which I am myself connected, for example, a much higher standard is applied than used to be considered necessary. No law student can be held to satisfy present requirements who confines himself to a superficial acquaintance with his text books, and refers to reputed decisions simply to find what judgments have been given under conditions as nearly as possible similar to those in which he may be called on to advise and act. The real student seeks to grasp principles—to trace the growth and development of these principles in older and cognate systems of

jurisprudence—to see how these systems have been and are applied in other countries—and so to raise himself above the antiquated standard of the mere case lawyer. The same observation applies to the study of the profession to which you are to devote yourselves. No man who contemplates the practice of veterinary science, as it should be prosecuted, may content himself with the attainments of the practitioner of former times, or the application to ever-varying animal ailments of stereotyped methods of treatment. Diseases, moreover, seem to change their type both as regards man and the lower animals, and to the investigation of their causes and remedies the highest intelligence and the most advanced modes of investigation must be directed. We have illustrations of this in the methods by which the treatment of Cholera and Hydrophobia are being even now investigated. In like manner also, when cattle disease threatened, some years ago, to decimate our herds, the local authorities of our large towns had to call in the aid of the most skilled men, who carried into their investigations the highest methods and appliances of science. For similar investigations, and the modes of treatment which may be suggested by them, you and the veterinary surgeons of the future must be prepared. In the knowledge and skill acquired by the study, theoretical and practical, of anatomy, botany, chemistry, and physiology, in the constant use of the microscope and the most delicate instruments of physical research, you will find the best means of equipping yourselves for your profession, and I believe a pleasure and fascination altogether independent of financial results. One could not listen to the results of last session's work, as these have just been stated by Principal M'Call, without being satisfied that in this College you have all the advantages of a thorough system of training. May I be permitted to express the hope that you who are now passing through the curriculum may so avail yourselves of your opportunities as to be enabled in after life to elevate the practice of your profession, and to place it in close alliance with that of the physician and surgeon, with which it necessarily has so much in common. Of Dr. M'Kendrick and his claims to our thanks, I do not feel myself at liberty to say more in his presence than that he has laid us all under obligation by his address here to-day. I feel assured you will very cordially express your sympathy with the vote of thanks which I have had the honour to propose.

The vote was heartily accorded, and a similar compliment to the chairman, on the motion of Prof. M'Kendrick, brought the proceedings to a close.

EXAMINATIONS OF THE ROYAL COLLEGE OF VETERINARY SURGEONS.

AT the meetings of the Court of Examiners of the Royal College of Veterinary Surgeons, held on the 8th, 9th, and 10th December, 1885, the following students from the Royal Veterinary College were admitted members of the profession :—

Mr. F. Wright	...	...	...	...	...	London.
„ B. Lacey	...	...	...	...	...	„
„ G. H. Pickwell	...	...	...	...	...	„
„ P. D. Langley	...	...	...	...	...	Enfield.
„ F. P. Eassie	...	...	...	...	...	London.
„ F. M. Stephens	...	...	...	...	...	Bombay.
„ W. Blunsom	...	...	...	...	...	Cirencester.
„ F. Hallilay	...	...	...	...	...	Leeds.
„ T. S. Newbury	...	...	...	...	...	Devonport.
„ A. H. Oliver	...	...	...	...	...	„
„ H. Gray	...	...	...	...	...	Stratford, E.

The following students passed their *Second Examination* on the 11th and 12th December, 1885 :—

Mr. G. D. Lausley.	Mr. W. H. Flook.
„ Josh. Bates.	* „ H. King.
„ G. F. Brown.	† „ R. W. Clarke.
„ J. R. Welsby.	„ W. B. Nelder.
* „ F. J. Carey.	„ H. A. MacCormack.
„ H. Goodwin.	* „ W. G. Patrick.

The following students passed their *First Examination* on the 14th and 15th December, 1885 :—

Mr. R. C. Bullen.	Mr. S. J. Williams.
„ W. A. Stainton.	† „ J. McLean.
„ C. N. Parsons.	„ J. L. Perry.
* „ J. R. Hogg.	„ A. D. Lalor.
„ J. C. Collings.	* „ C. E. Doyle.
„ F. Walmesley.	„ F. O. L. Walpole.
* „ E. Ainsley.	

ARTHUR WM. HILL,
Secretary.

At meetings of the Scottish Section of the Board of Examiners of the Royal College of Veterinary Surgeons, held in Edinburgh on and between the 17th and 19th December last, the following gentlemen passed their Final Examination, and were admitted members of the profession :—

New Veterinary College.

Mr. Charles Galloway	...	...	...	Preston.
„ Wm. A. Harris	...	...	...	New York.
„ A. W. Middlehurst	...	...	...	Liverpool.
„ Charles Drabble	...	...	...	Chesterfield.
„ Thomas Anderson	...	...	...	Hexham.
„ D. R. Kayes	...	...	...	Westport, Mayo.
„ W. Berry	...	...	...	Haddington.

Dick Veterinary College.

Mr. Percival Snaith	...	...	...	Darlington.
„ G. C. Robertson	...	...	...	Blairgowrie.
„ John Barr	...	...	...	Kirkcudbright.

The following passed their *Second Examination* :—

New Veterinary College.

Mr. T. W. Barraclough.	* Mr. J. Brigham.
„ J. Hall.	

Dick Veterinary College.

Mr. J. Best.	Mr. J. McAleer.
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The following passed their *First Examination* :—

New Veterinary College.

Mr. E. H. Schofield.	Mr. F. L. Carter.
„ J. Borthwick.	„ H. Phelan.
„ J. W. Schofield.	„ J. Dickie.
„ A. D. Dunbar.	† „ T. Chalmers
„ R. Horne.	W. Wright
* „ H. Race.	

Dick Veterinary College.

Mr. J. Sheehy.

Glasgow Veterinary College.

Mr. J. Macfarlane.

R. RUTHERFORD, M.R.C.V.S.,
Secretary, Scottish Section Board of Examiners.

* Marked thus passed with "Great Credit."

† Marked thus passed with "Very Great Credit."

Jurisprudence.

A VETERINARY SURGEON'S LIABILITY.

A CASE of considerable interest to stockowners and veterinary surgeons was begun in the Supreme Court, Darlinghurst, New South Wales, before the Chief Justice and a jury of four, on September 16th, and concluded next day. Mr. J. A. Roberts, of the firm of Roberts and Chalmers, iron merchants, was the plaintiff; and Messrs. Stanley and Scott, veterinary surgeons, were the defendants. The plaintiff sought to recover £500 damages, the value of the imported American trotting stallion, Pioneer, which died while under the defendants' treatment. The declaration set out that the horse was negligently treated. The plaintiff gave evidence to the effect that the horse was suffering from contracted feet, and he placed it in the hands of the defendants for treatment. The defendants suggested that the fore feet so affected should be fired, and in order to carry out the operation the horse had to be thrown, and as a consequence the spine was fractured. The horse lived for three days afterward, and then died. He attributed the loss of the horse to the neglect of the defendants. Evidence was called to show that, in performing the operation of firing the feet, throwing the horse was not necessary, and quotations were made of certain text books bearing out this fact.

For the defence, Mr. EDWARD STANLEY, M.R.C.V.S., said that he had been practising as a qualified veterinary surgeon for twenty-three years, and had served seven years before he took his diploma. He was veterinary surgeon to the 5th Royal Lancers, and was now employed as a Government veterinary surgeon. He and Mr. Scott had dissolved partnership in consequence of his Government employment. Mr. Roberts had never asked him to see the horse, but Mr. Scott had consulted with him on the better course to adopt. The horse was suffering from a constitutional disease, and, therefore, was utterly valueless. The disease from which he was suffering being hereditary, it would naturally be transmitted to any stock he might get, at the same time rendering him useless either as a trotting or working horse. It was absolutely necessary to "throw" the horse to perform the operation, which was a most dangerous one to the operator. He had "fired" hundreds of horses when standing, but it was by no means safe, especially with a thoroughbred horse with a very tender skin. The operation was most difficult and delicate, and required great care. The patent hobbles produced were those universally used for the operation, by qualified veterinary surgeons, for the last twenty years. He had never known a horse's back to be broken consequent upon the fall. There were numerous instances where the spine had been fractured by the horse plunging when on the ground.

Mr. ROBERT SCOTT, M.R.C.V.S., said that the plaintiff had called upon him, and asked him to examine the horse Pioneer. Mr. Stanley accompanied him to Waverley, and they came to the conclusion that the condition of the horse was hopeless. He wrote to Mr. Roberts to this effect. The operation known as neurotomy, or the cutting of the nerve tissues, was necessary. On receiving the report Mr. Roberts called upon him, and said he trusted the case was not so hopeless as they may at first have imagined, and asked for advice. The witness said he did not think the circumstances favourable enough to perform the operation of neurotomy. However, he agreed that if in five or six months the horse grew a good hoof he would perform the operation. In the meantime the horse was to be kept in a "puddle" box, and blistered frequently. A few days subsequently Mr. Roberts again called on him, and suggested that the hoofs should be "fired." The witness again pointed out that firing could only have the same effect as blistering, and that was to increase the circulation in the affected part. Mr. Roberts said he was of opinion that the firing would do good, and requested him to perform the operation. Accordingly, with the assistance of his groom and two of the plaintiff's men, the horse was thrown gently on to a bed of straw prepared for the purpose, and the operation performed. As soon as the hobbles were released, the horse stretched out its fore legs to rise, when the witness heard a crack. He made the remark at the time, "The horse's back is broken." He told Mr. Roberts of the occurrence, and recommended him to shoot the animal, to which he replied that he would hold witness accountable for wilful neglect. The nature of the fracture was such that it could not have been caused in the fall.

Other evidence was called to show that "throwing" the horse to perform the operation in question was invariably resorted to, and a leading veterinary authority (Prof. Williams) was quoted in support.

The counsel agreed not to address the jury, and on withdrawing informed his Honour that it was not out of any disrespect to him that they were leaving the court. His Honour jocularly rejoined that probably the learned counsel were going elsewhere to discuss the subject of horses, and so he would accept their assurance.

Next day it was stated that the action was brought for the recovery of £500 damages for alleged negligence in regard to the treatment of a horse. The defendants were veterinary surgeons, and were, it was alleged, employed by the plaintiff to cure a trotting stallion, called "Pioneer," of fever in the feet. The defendants had together seen the horse on a Saturday afternoon, and a document was produced relating to the treatment of the animal, and signed by "Stanley and Scott," but a document of a later date simply bore the signature of the defendant Scott. Scott performed the operation of firing the fore-feet of the horse, and in order to do that used patent hobbles, and threw the animal. The horse's back became fractured, and death took place three days afterwards. The plaintiff's view of the matter was that the operation of firing might have been performed without throwing, and that even assuming that it was necessary to throw the horse, hobbles such as those used for the purpose should not have been employed, but a different method ought to have been resorted to. The defendants' case was that the partnership which at one time existed between them was dissolved before any transactions were entered into with Mr. Roberts, that the operation performed was carried out by Scott on his own responsibility, that when Stanley went to see the horse he acted simply in the capacity of a friend to Scott, that the mode of throwing the horse and firing the animal was in accordance with the teaching of the Royal College of Veterinary Surgeons (of which both the defendants were members), and that the fracture which led to the death of the animal arose after the horse had been thrown and the operation performed, and was due

to muscular contraction, occasioned, according to the authorities, by the animal struggling. A *post-mortem* examination of the horse was made, and Mr. John Stewart, veterinary surgeon, speaking with reference to it, said it showed that the animal was suffering from a disease (Osteo-porosis), the characteristic of which was a brittle fragile state of the bones, with a loose texture.

His HONOUR said that the action was brought by the plaintiff, against the defendants, to recover damages for negligent treatment of the horse, in the way the jury had heard described. The action was brought against the two defendants on the assumption that they were partners. The agreement that had been made was with the firm, yet the defence that had been set up there was that they were not partners, that Scott was the sole person engaged in the business. It was admitted by both that they were partners up to the 25th December. Just at that time Stanley, it was stated in evidence by him, entered the Government service, and the partnership was dissolved from that date. Scott, however, said in evidence that the partnership was continued until the end of December or the beginning of January. Although they said it was dissolved, yet the name of "Stanley and Scott" was at the time over their door, and was over their door still. Moreover, Mr. Stanley went out with Mr. Scott, and both examined the horse. Scott said that Stanley went out with him simply as a friend, and not at all as a contracting party. A report was drawn up—the first draft was written by Stanley and was copied by Scott—and they were both spoken of therein as the firm of Stanley and Scott. There was also some evidence to show that, in talking about those matters, they spoke about what had been done as being done by both. In looking at that part of the case, the jury had to consider whether both or only one of the defendants was liable. The jury had to look at the whole of the evidence, and to consider whether the facts of the defendants having been in partnership, keeping up the name, and joining in a report as to the condition of the horse, constituted sufficient evidence to render them both liable. If the jury came to the conclusion that the contract was made with the firm, and not with Scott alone, then they had in the next place to consider whether the defendants were guilty of negligence, for which the plaintiff would be entitled to recover. Now a man, whether he was a veterinary surgeon, or any other surgeon, was not liable for anything that might arise from mere errors of judgment or from accident, if he used in the performance of his work mere ordinary skill. Where a person used the instruments it was usual for competent persons to employ—and his own experience told him they were proper instruments—then, although other individuals did not agree with him, that would not make him liable. They had heard some passages read from books on veterinary science, to the effect that a horse might be fired without being thrown; on the other hand, they had heard opinions expressed by other writers, and by witnesses whom they had heard, that the only proper course to adopt in regard to the firing of a horse, was to throw him. Then, as against the mode of throwing, some passages had been read to show that firing might be done by a side line; and it was said that was the only proper mode. Well, where there was a mere difference of opinion—where side lines were sometimes used, and sometimes another course was adopted—a man would not be liable for an error of judgment in using one course in preference to another. Where two or more courses might be taken, supposing that there was no gross ignorance, a man would not be liable for taking that course which another person might not consider the correct course. Now, what was done was to use those patent hobbles which had been exhibited, and in regard to the particular operation of throwing practised, it was stated that by it the horse was caused to fall, not suddenly,

but gradually. There was also the evidence of two persons, who were present at the throwing, to the effect that after the operation, when the horse attempted to rise on his fore legs, a sudden snap was heard. Well, if the jury believed that evidence, it would seem to show that it was not in throwing the horse down that the injury arose, but it was when the horse tried to rise after the operation that the cracking of the bone took place. The defendants could not be liable for an injury which did not arise from the throwing of the horse down in that way. In whatever way the horse was thrown, if the injury arose in the horse getting up, the plaintiff could not recover. The last witness called described the result of the *post-mortem* examination, which disclosed, he said, that the bones of the animal were very fragile ; and the evidence of that witness was to some extent confirmed by the witnesses who said that when the horse attempted to rise they heard a cracking. The defendants would not be liable if the bones were fractured in that way. The plaintiff must make out his case by a preponderance of evidence, and if the evidence there was not greater on the part of the plaintiff than that on behalf of the defendants, the jury must find a verdict for the defendants. If the jury found that the course pursued was not warranted at all by men of experience, and for the plaintiff, the damages would be such as would take in the value of the horse, £444. The evidence showed that what was done was the usual thing, and, in the opinion of some witnesses, the best thing. After deliberating for a quarter of an hour, the jury found a verdict for the defendants.

Army Veterinary Department.

Gazette, January 19th.

The undermentioned Veterinary Surgeons, First Class, to be placed on retired pay, with the honorary rank of Inspecting Veterinary Surgeon :— John Baldock, dated 23rd January, 1886 ; Frederick F. Marshall, dated 20th January, 1886.

Obituary.

WE have to announce the death of H. F. McGrath, M.R.C.V.S., Kilrush, County Clare ; of P. Walker, M.R.C.V.S., Bradford ; of J. Keay, M.R.C.V.S., Whixhall, Salop ; and of J. F. Thompson, M.R.C.V.S., who died at Whitehaven on January 5th, in his 26th year. Mr. Thompson was the eldest son of H. Thompson, M.R.C.V.S., of Aspatria, and graduated so lately as 1880. A melancholy circumstance is connected with his sudden and premature decease, in that he was to have been married the following day. The *West Cumberland Times* has the following notice of the regrettable event :—“ Very distressing are the circumstances in which young Mr. Thompson, veterinary surgeon, of Aspatria, has been called to his death. His marriage with Miss Nixon, of Ghyllbank, Whitehaven, was arranged to take place on Thursday last week ; but in the week previous, through being accidentally crushed by a bull, he received severe internal injuries, which laid him up for a few days. He was, nevertheless, able to visit Whitehaven in the same week ; but on his return home he experienced a renewal of the suffering, and the marriage was postponed until Wednesday last. On Monday he made a further visit to Ghyllbank, and during the day and following night the effects of his injuries were again felt with increasing severity. Medical assistance was obtained, but on Tuesday afternoon he died. The premature withdrawal of a useful and

promising life at a junction so peculiar, has naturally created a feeling of profound and widespread regret, and sympathy with those who are more immediately affected by the sad bereavement."

J. S. Woods, M.R.C.V.S., late of Her Majesty's Indian Army, died on January 20th, aged sixty years, at Charing Cross Hospital, from malignant disease of the rectum, notwithstanding colotomy had been performed.

Germany has just sustained a heavy loss by the demise of one of her most distinguished veterinarians. Professor Dr. Roloff, Director of the Royal Veterinary School, Berlin, and Member of the Imperial Board of Health, died on December 23rd, after a long and painful illness, at the comparatively early age of fifty-six years. Previous to his appointment as Director of the School, in succession to the late Professor Gerlach, Roloff had been for a long time Extraordinary Professor in the Agricultural Institute of the University of Halle. Well known in Germany as one of the most advanced comparative pathologists, his writings are held in high esteem, and are somewhat numerous. He was a contributor to Virchow's *Archiv*, was editor-in-chief of the professional *Archiv für Wissenschaftliche und Praktische Thierheilkunde*, and had published treatises on Protective Inoculation for Contagious Pleuro-pneumonia (1868); on Cattle Plague (1871); on Tuberculosis in Swine (1875), and on Splenic Fever (1883). His body was cremated on December 27th, Professor Virchow pronouncing an eloquent oration over it before it was consumed.

Notes and News.

SWINE FEVER.—During the quarter ending September 26th, 2,803 fresh outbreaks were reported in Great Britain, and 11,986 swine were attacked, of which 3,128, or more than one-fourth, died. In the preceding quarter the outbreaks amounted to 3,188, and there were 15,407 swine attacked. Under the operation of the England Markets and Fairs (Swine Fever) Temporary Order the disease has declined, and this order has been continued to the end of March.

PLEURO-PNEUMONIA IN AMERICA.—This disease has recently been reported to exist in America in the following States, viz. :—New York, New Jersey, Delaware, Maryland, Virginia, Kentucky, Ohio, Tennessee, and Columbia. In the Netherlands, for a period of four months, no case of this disease was reported. In Great Britain during the thirteen weeks ending 26th September, 125 fresh outbreaks of Pleuro-pneumonia were reported, and 503 cattle were attacked. This shows an increase, as compared with the corresponding period of last year, when there were 77 outbreaks and 276 cattle attacked. The disease has recently been most prevalent in the following counties in England :—Kent, Lancaster, Middlesex, York (West Riding), the metropolis, and the county of Lanark, in Scotland.

CHARGE OF UNSKILFULNESS AGAINST A VETERINARY SURGEON.—At the Congleton County Court, on November 3rd, Mr. Laithwood, M.R.C.V.S., was sued for the value of a colt which he had castrated, and which, it was alleged, had died through his neglect to attend to it after the operation. The evidence of the defendant, however, went to prove that the animal died from Peritonitis, due to exposure to cold, and Mr. Thomas Greaves having given evidence in support, the judge dismissed the case with costs, adding that the prosecution had tried to damage the defendant's repu-

tation in a most careless and reprehensible manner, stigmatising as reprehensible and objectionable the course pursued by the prosecutor.

HORSES OF THE PAST AND PRESENT.—An interesting lecture was recently delivered on this subject at the London Institution by Professor W. H. Flower, LL.D., F.R.S. (the director of the Natural History Department of the British Museum). The large assembly testified their thorough appreciation of the lecture, which was illustrated by many excellent drawings of ancient and modern specimens of the hoofed group of animals, and also by skeletons of the jaws of a horse and the leg of a pony. After some introductory remarks, the professor said that as it was very difficult to understand what a horse really was until they knew a good deal about the relations and family history of the animal, he should have to travel somewhat beyond the facts about the common animal spoken of as a horse. He should therefore go into the history of the whole group of the animals which were believed to be the cousins and ancestors of the horse—or, at least, as many of them as were known up to the present time. There was a period when naturalists looked upon the horse as a very isolated and singular creature, because it walked so differently from other animals; and the naturalists therefore made it an order by itself under the title of “solid-hoof.” The fuller knowledge obtained during the past fifty years as to the comparative anatomy of the horse, and as to the myriads of extinct forms of animal life, had shown that the horse was only one of a large group of animals. He should have to assume Darwin’s theory of derivation or descent of one form of animal from another, and as he traced the history of some of the animals, the audience would be able to draw their own conclusions as to whether that theory was borne out by the facts. The group of animals of which he would speak were those known as the hoofed animals, and those which were existing now were divided into two great and distinct groups. He then proceeded to deal with the relations between the horse, the rhinoceros, and the tapir. That group comprised the horse and its most immediate allies, such as the donkey and the various forms of zebras, which were practically almost the same in their structure as the horse. More was known about the ancient history of that group, because in early years it was far more abundant in the world than at present. It seemed to be on the decrease—dying out, as it were—and probably would become extinct but for donkeys and horses being so valuable to man. The wild species had become fewer and fewer, and probably before long they would become extinct. After going at some length into details as to the fossils of the hoofed group of animals which had been found in the London clay, the professor gave some particulars as to the habits and characteristics of both the tapir and rhinoceros branches, and then said that the horse family was that branch which had undergone by far the greatest changes. It was, too, the most interesting branch of the family. It had been continually changing from its ancestors, and the points in which the horse had differed were very numerous. It had been gradually adapting itself to the changed conditions of the times. It had gradually increased in size, and especially in the length of the neck; its legs had lengthened, and its toes had disappeared. There were certain alterations in the structure of the bones, but mainly the alterations were in two points—in the teeth and the feet, both of which had been adapting the horse for the altered conditions of his life. So great had been the changes that specimens could be traced back showing that at one time some of them were no bigger than a hare. It was now difficult to find anything more perfect in its whole organisation than the horse. It had ceased to be anything like the tapir, and as the horse was when it lived in woods, forests, by lakes, and on marshy land. It had become changed to an animal destined to inhabit the dry, open plain, far away

from the cover of woods and from the swampy ground, into which its fee might sink, and also destined to live upon the food of the open plain—dry, hard, harsh herbage that grew in open spaces. The modifications of the teeth had now reached the point at which it was difficult to conceive anything better adapted for grinding hard herbage, and the feet had got to the point which specially facilitated speed over hard ground. The whole of the changes had been obviously advantages to the animal, for everything seemed to be concentrated to one point—viz., that of enabling the animal to run speedily over the ground. The foot had been modified into an organ simply for support, and for that purpose it was about as perfect as anything could be. The existing species of horses or horse-like animals had been divided into two kinds—that of the horse and the donkey, between which the difference was not great. The principal difference was that there was a great deal more hair in the tail of the horse, and it came, as it were, from the root of the tail; whereas in nearly all forms of the donkey the hair grew more like that of the cow's tail—at the end rather than at the root. There were curious little horny patches, something like corns, which grew on the horse's legs, but their use or meaning was entirely unknown. The donkey-like animals were divided into two kinds—those which were striped and those which were not. The striped ones all lived in Africa, and the best-known was the zebra. The donkeys were mainly inhabitants of Asia, and probably the ancestor of the present domestic donkey was the Abyssinian wild ass. The true horse, so far as they now knew, was related to those which were found in the highlands of Central Asia. The wild horse at one time was extremely numerous in America. Whether, however, the American horse was of the same species as the European horse was rather doubtful. It was singular that the horses once so abundant in America had become extinct there. The ancestral form of the horse was abundant in that country long before it was discovered by the Spaniards; but all the horses now in that country had been introduced from Europe. The New World on the other side of the Atlantic was certainly well suited to the horse. There was little doubt but that the present domestic horse of this country was derived from the wild horse of Europe and Asia. There was considerable doubt, however, as to the period at which they became domesticated, as it extended beyond the record of history. The gradual modifications in the animal had all followed definite periods of the world's history. All the facts in connection with the horse and its modifications pointed to the conclusion, which he thought it was impossible to resist, and which was now generally adopted by naturalists—and that conclusion was one which the works of Darwin had helped to inspire—viz., that the changes in the different animals had been gradual instead of each being a separate and distinct creation. The changes in the horse had all been produced by gradual modifications of the ancestral form.

VETERINARY SURGERY IN EGYPT.—According to the special correspondent of the *British Medical Journal*, the native veterinary surgeons who were suspended from their offices until they should show that they were qualified, have recently been examined as to their knowledge. They showed a lamentable ignorance of the anatomy of the horse, and not one passed the examination. Their services were consequently dispensed with. This wholesale reform attracted a good deal of hostile criticism from Europeans and natives, including the Khedive. Surgeon-Major Greene visited the latter, and represented to him that the step taken was greatly to the advantage of his Highness's subjects, and succeeded in removing his scruples.

SPAYING COWS.—A correspondent of the *Canadian Breeder* writes of his experience in spaying cows and heifers in Australia. He says that in con-

sequence of the extensiveness of the cattle ranges, from 500 to 5,000 square miles, in Queensland and South Australia, the cattle in many instances become very wild, and are not always to be found when the branding takes place, and so many calves are lost, and frequently some awful specimens of weedy bulls are found. The get from such cattle is weedy, and then the spaying-knife is used on the heifers. He says that he has spayed old cows as well, and has never known the loss to exceed one per cent. He thinks at eight months is about the best time to spay heifers, as they fatten as they grow, and during the worst seasons of drought, a spayed cow or heifer, if fat before, will not lose very much beef, and will put it on again very quickly. He had always found it a good plan to spay wild cows, as it invariably tamed them, and they became fit for beef, whereas before they would kill their calves by constant running. Spayed cows fetched a good price on the market there when fat.

Correspondence.

AMPUTATING HORSES' TAILS.

SIR,—I beg to forward the following extract from a communication lately received by myself from India :—

“A horse with a docked tail becomes, during the hot and rainy seasons, tormented with flies, and, having a short tail, cannot whisk them away ; and when a docked horse is in the districts, the sheath or penis itself sometimes becomes fly-blown and affected with maggots, causing unhealthy sores, which have in several cases rendered stallions temporarily useless, and in two instances permanently unfit for stud purposes.”

Comment is needless, but nothing can show in a stronger light the wisdom of the present regulation against the purchase, for army purposes, of horses whose tails have been docked. Liable as they are at any time to be sent on service in hot countries, a docked tail not only ensures continual torment by flies, but exposes a wretched animal to the risk of being tortured by maggots eating the sheath and penis.

J. J. MEYRICK, F.R.C.V.S.

19th December, 1885.

DISLOCATION OF THE PATELLA.

SIR,—In your last issue Mr. Maller accuses me of boldness in bringing forward the statements with regard to above ; but I consider he has shown more boldness in considering that all English veterinary surgeons must see as he does. He, like every other, is entitled to his own opinion, but to constitute himself the mouthpiece of the whole profession, and talk as if every one must see after his fashion, is, I think, going a little too fast. We are all well aware of the truth of the saying, “*Tot homines, tot sententiæ*,” but when objections are made, in order to be valid they should be a little more explicit than those of Mr. Maller. He has given us a few instances of what he has seen, and, according to him, of what every one can see for himself ; but that they carry any conviction I fail to comprehend. Why has he not mentioned in what position he found the patella, and the condition of the internal lateral ligament on *post-mortem* examination ? I here say that I have not accepted M. Chuchu's statements without contradiction, and if any one will study the attachment of the patella on the internal side, strengthened by the complementary fibro-cartilage, and afterward ponder over what takes place during life when this accident occurs, he will find it rather difficult to contradict,

and when the truth is revealed, on *post-mortem* examination, I think the evidence is conclusive. As Professor Williams' authority has been brought forward, I may be allowed to quote from his work. Page 142, he says, "The internal lateral ligament becomes stretched across the internal prominence of the trochlea, and is thus *torn or chafed*." Further, "When the luxation is complete the internal lateral ligament *must be ruptured through its whole thickness*, and the patella slips outward."

This corroborates what I have stated—that it is impossible for the patella to slip outwards over the femoral trochlea without rupture of the internal lateral ligament; and that this cannot have occurred in those cases in which, after reduction, we find the animal proceeding as if nothing had happened is surely patent to all.

HENRY TWEEDLEY.

Glasgow, *January 8th*.

SPAVIN.

SIR,—On page 56 of this month's Journal, I am reported to have said, in describing a specimen of Spavin at the discussion on Mr. Banham's paper, that "In this specimen they would see that it was one of Serous or Fibrous Spavin." What I did say was, that "In this specimen there was neither Serous nor Fibrous Spavin in the seat of the bursa, as described by Mr. Banham in his extracts from Dieckerhoff, but that this was a Bone Spavin, only involving the bone and periosteum, the bursa under the flexor tendon, which was easily demonstrated to all the members present, being neither obliterated nor diseased." Instead of agreeing with Dieckerhoff's theory of the pathology of Spavin, as would appear from the report in your Journal, all the specimens I have seen lead me to believe that his theory, that Bone Spavin is preceded by a Serous and a Fibrous Spavin in the seat of bursa, rarely if ever occurs, but instead any pathological changes in the bursa are of secondary and not primary origin. Furthermore, if Professor Dieckerhoff's pathology of Bone Spavin be true, his treatment must be an absurdity, and to prove this all that is required is to place the following extracts from Mr. Banham's paper side by side:—

Pathology.—"The membrane lining the bursa first becomes reddened, and secretes a serous fluid (not found in the normal bursa), infiltrated with cells, causing a swelling or bursal enlargement—*Serous Spavin*. Plastic lymph is then formed, and the two sides of the bursa become united and indurated, at which stage the process may cease, when we have obliteration of the bursa and the formation of a *Fibrous Spavin*."

Treatment.—"Dieckerhoff has found opening the bursa situated upon the fan-shaped insertion branch of the tendinous portion of the flexor metatarsi to be most successful. It causes inflammation, union of the walls, and destruction of the bursa."

That is, for the treatment of Bone Spavin we are recommended by Dieckerhoff to open a bursa which, if his theory of the pathology be correct, is obliterated before a Bone Spavin has been formed.

JOHN MALCOLM.

Holliday Street Wharf, Birmingham,
4th January, 1886.

NATIONAL VETERINARY ASSOCIATION.

DEAR SIR,—Will you kindly permit me, through your Journal, to apologise to the following gentlemen for omitting their names from the list of members

in the last proceedings, viz., J. Attwood, Bilston, Staffs.; T. F. Merrick, Northampton; T. W. Whitney, Shepton Mallet; and to ask those who are not properly described in the list to kindly inform me of it.

GEO. A. BANHAM,
General Secretary National Veterinary Association.

THE ARMY VETERINARY DEPARTMENT.

SIR,—I wish to point out two errors in Mr. J. F. Oliver's letter.

1st. The Indian Government, far from taking on extra Veterinary officers, is reducing its already over-worked staff.

2nd. Veterinary officers serving under the Warrant of 1878, can receive neither promotion nor rewards during their ten years' service.

“SACK.”

SIR,—I confess I do not understand the greater part of your note to my letter in your last issue. Granted I was in error in asserting there were few men in the Department when the 1878 Warrant was promulgated; your statement, that the Department contained more officers, supports my argument. For, if it were so, fewer men would be required to join to keep up the complement, and therefore there would be fewer to leave when their ten years were up; consequently, the chances for the retention of all good men would be greater.

May I ask you to explain—“Under it there is, *perhaps*, not much danger of good officers being dismissed”? Take the fourteen officers who joined in 1884.

Paragraph 14 of the Warrant of 1878 most distinctly states that not more than four shall be retained.

Would you convey that there is not much danger of more than four out of fourteen officers being worth keeping ten years hence? Surely they must be a poor lot now, if ten years' run in the army leaves so many of them worthless. Nor will the Head of the Army Veterinary Department be able to retain as many as he pleases without driving a coach-and-six through the Warrant.

In the latter part of your note, I regret to see you utterly ignore my assertions without controverting them.

Your statement—“and of retaining those who shall have proved themselves worthy of retention”—is in direct opposition to my figures. I must deny your statement, and repeat that so long as only four officers can be retained each year, many good men will have to go. The subject is too important to be dismissed with a foot-note, and I would suggest your views be given in a leader.

You have upset one of my assertions, and thereby strengthened my position; may I beg you to disprove the others in your next?

J. F. OLIVER.

[It is considered premature, at least, to discuss this matter further. A year or so hence will be time enough to open the question again.—ED. V.J.]

BROKEN BACK.

SIR,—The enclosed clipping from the local papers gives an account of a case that may interest your readers. As I cannot remember a similar prosecution, I venture to ask you to do me the favour of giving it publicity in your Journal.

Professor Williams' remarks (*vide* his work on "Surgery") were very valuable, although so brief, and if I may be permitted to offer a suggestion to Dr. Fleming and Professor Robertson, who are, I believe, both engaged in writing books on veterinary surgery, it is that they lay down distinctly the fact of horses being liable to break the bones of their backs, thighs, etc., *by their own muscular efforts* in straining to break away from the shackles, hobbles, or ropes that secure them; and that such accidents cannot be avoided by any known mechanical appliances, which will control the animal, and at the same time ensure the safety of the operator and of his assistants.

It is undoubtedly good practice to reduce the patient by low feeding, and give a purgative the day before operating, and also to administer an anæsthetic, but many circumstances will militate against these precautions being always practicable.

It would be well to point out what diseases of osseous tissue predispose to fracture, such as Mollities Ossium, Fragilitis Ossium, Osteomalacia, Osteoporosis, Callus or Anchylosis. Judging from my own experience, Anchylosis is the most frequently met with in these *accidental* fractures. The vertebral processes in almost all horses exhibit a very marked tendency to this condition, owing to the transformation of the ligamentous tissues into osseous, brittle, and unyielding material, most frequently entirely unassociated with any symptoms indicating the gravity of the transformation, and not of necessity accompanied by age, although most frequently seen after the adult period.

It should also be distinctly stated that the majority of surgical operations on the limbs of horses are consequent on ossific diseases; and although the surgeon diagnoses the case as constitutional, nevertheless he is fully warranted in operating, and should be held free from vexatious legislation, because, without operating, the animal is comparatively valueless, and the operation may arrest the disease. Some veterinary surgeons think they are safe if the owner gives a written assurance that he will accept all the risk of an operation. I see two objections to this: First, it creates unnecessary alarm, and is likely to be interpreted by the owner that the surgeon anticipates evil consequences to his animal; whereas the accidents are certainly not one per cent. of horses thrown with hobbles, or casting ropes, for the purpose of surgical operations. Secondly, the surgeon, in point of law, would still be liable, if negligence or carelessness were proved against him, no matter what agreement the owner may have signed. He signed in good faith, being willing to risk his animal to fair, legitimate, and skilful manipulation, with proper appliances to ensure, as far as possible its safety and that of the persons engaged in the operation.

The state of the veterinary profession in these colonies is most disheartening; the people are egotistically ignorant of animal diseases, and charlatanism is rampant.

EDWARD STANLEY, F.R.C.V.S.

Sydney, N.S.W.

[Broken back and its prevention are fully treated of in Fleming's "Operative Veterinary Surgery."]

THE NATIONAL VETERINARY BENEVOLENT AND DEFENCE SOCIETY.

SIR,—Our Society has existed over twenty years ; we have defended many cases, and helped many families in need. At the present time we have nearly £2,500 in hand. There are those who find fault with us because we feel an anxiety to mediate between an offended or aggrieved client and any of our members, with a view to bring about an amicable and honourable settlement of the dispute. They taunt us as being a settling society ; they say, on principle we ought to defend every case that turns up ; that we are really a fighting society. Now, with this definition of our Society I am totally at variance. I would not continue a member of it another day if this pugnacious, fighting principle must dominate our actions, instead of being ruled, as now, by reason, fairness, and justice. When it is called a settling society, and is spoken of in a spirit of reproach and obloquy, then I resent the taunt as being indecorous, churlish, and insolent. Taking our Society in a proper sense, in a magnanimous and generous sense, it is truly a settling society. What else is it ? When we undertake to inquire into the case, if we find it is one that we can defend on principle, we assume the responsibility of the case. If we do not arrange the case and settle it with the client, we engage a solicitor ; we instruct him, and if the judge, or judge and jury, decide against us, we have to find the cash ; we have to settle it in the one case exactly the same as in the other. Therefore, I say in either case, whether we settle it with the plaintiff ourselves, or through the medium of a trial, it comes to the same thing ; only in the one case it may cost £10, in the other £100. *A settlement takes place*, and the designation of a settling society, when spoken of in a proper and becoming spirit, is a legitimate and *proper definition*.

Now, let us for a few moments just look into the working of this Society as it is at present constituted. We will suppose one of our members writes to us that he has received a lawyer's letter or a county court summons for, say, £20 or £50, being the supposed amount of loss his client has sustained consequent on some neglect of our member. It may be a horse lamed in shoeing, or injured in casting him, or blemished in blistering, or unsound when passed sound. The course we adopt is to call a meeting of Council ; the defendant explains the case to us ; we consider it, and, acting on the information we then possess, given us by the defendant from his point of view, we decide to defend him. But we have also the power to seek an interview with the plaintiff, which we always do, and also examine the horse in dispute, when practicable. We get all the particulars from the plaintiff's point of view ; *this is invaluable to us*. We can now understand the *whole case* ; we are now enabled to judge and act fairly and justly. We often find that the first impression we formed of the case becomes considerably modified ; that if we allowed the case to go into court, and by dint of good management and generalship we won the case, we feel in our conscience that it would be an unjust result ; in fact, it would be a proceeding in which a body of honourable men would not feel justified under such circumstances. We, as business men, approach the plaintiff in an affable and kind manner, and say to him : " Whatever we say to you is without prejudice. We find your case has many weak points in it, and you know the uncertainty of law ; do you not think it would be much better for you to try and settle it ? " We always find him open to reason, willing to avoid law. With a little skilful discussion, we come to an amicable and honourable settlement, perhaps for one-half, or one-third, or one-fourth the amount he is suing our member for.

We will now for a moment compare this mode of proceeding with the fighting, defending method so strongly advocated by some of our members. We will suppose that a client, who is a litigious person, feels himself aggrieved with his veterinary surgeon ; it may be he has passed a horse which he finds,

THE NATIONAL VETERINARY BENEVOLENT FINANCIAL STATEMENT,

From January 1st to December 31st, 1885.

1885.	CASH RECEIVED.	£	s.	d.
Balance in Bank, January 1st, 1885		165	5	9
Cash in Mersey Docks ...		1900	0	0
Dividend on £1300, June, 1885, less tax ...		25	7	0
" " Dec., 1885 "		25	3	9
" £600 June, " "		11	5	9
" Dec. " "		11	4	9
Two half-years' Bank Interest ...		2	14	1

£2141 1 1

1885.	CASH PAID.	£	s.	d.
January 14th, Mrs. Fallding and Family ...		5	0	0
January 23rd, Brown's orphans ...		5	0	0
April 27th, Mrs. Rushall and Family... ..		5	0	0
August 13th, Mrs. Rushall and Family... ..		5	0	0
September 15th, Mrs. Fallding and Family... ..		5	0	0
November 17th, Mrs. Rushall and Family... ..		5	0	0
December 24th, Cash in Bank ...		211	1	1
Docks " " in Mersey		1900	0	0

£2141 1 1

Audited and found correct, JOHN B. WOLSTENHOLME,
January 11th, 1886.

THOMAS GREAVES, *Hon. Treasurer.*

LIST OF SUBSCRIPTIONS FROM JANUARY 1ST TO DECEMBER 31ST, 1885.

1885.		£	s.	d.
Jan. 8	Mr. J. Bale	0	10	6
" 8	" W. Carless	1	1	0
" 8	" Triggarr	1	1	0
" 8	" Beddard	1	1	0
" 8	" H. M. Stanley ...	1	1	0
" 8	" Russell	0	10	6
" 8	" J. Freeman	0	10	6
" 8	" E. Meek	1	1	0
" 8	" Hy. Thompson...	1	1	0
" 8	Messrs. Cartwright and Son.....	2	2	0
" 8	Mr. H. W. Caton ...	1	1	0
" 8	" C. Sheather	1	1	0
" 8	" E. H. Leach ...	0	10	6
" 8	" J. H. Goodall ...	1	1	0
" 8	" C. Moir.....	0	10	6
" 8	" R. Reynolds.....	1	1	0
" 8	" J. C. James	0	10	6
" 8	" W. Elam	1	1	0
" 8	" F. G. Samson ...	1	1	0
" 8	" G. A. Banham ...	1	1	0
" 8	" Hy. Olver.....	0	10	6
" 8	Messrs. Storrar and Son.....	1	1	0
" 8	Mr. T. Walley	1	1	0
" 8	" T. Gregory	0	10	6
" 8	" W. Whittle	0	10	6
" 8	" T. Markham	0	10	6
" 8	" James Rowe	1	1	0
" 9	" E. Nuttall	0	10	6
" 9	" R. C. Edwards ...	0	10	6
" 11	" F. T. Stanley ...	1	1	0
" 11	" Edwin Faulkner	1	1	0
" 11	" T. D. Lambert ...	1	1	0

1885.		£	s.	d.
Jan. 11	Mr. T. D. Broad	1	1	0
" 11	" T. G. Chesterman	1	1	0
" 11	" J. R. Cox	1	1	0
" 11	" F. E. Knott	2	2	0
" 12	" J. Overed	0	10	6
" 13	Messrs. Batt and Son	2	2	0
" 13	Mr. Hy. Withers	1	1	0
" 15	" A. Hy. Santy ...	1	1	0
" 15	" Wm. Bower	1	1	0
" 15	" Wm. A. Field ...	0	10	6
" 15	" Thos. Barker.....	1	1	0
" 18	" G. H. Pyatt	1	1	0
" 18	" P. Danby	0	10	6
" 18	" B. Cartledge	0	10	6
" 18	" T. Dallar	1	1	0
" 18	" H. Stanley, deposit on account of defence	5	0	0
" 20	" T. Collins	0	10	6
" 21	" C. Crowhurst ...	0	10	6
" 26	" T. W. Wragg ...	1	1	0
" 26	" C. Morgan	1	1	0
" 26	Sir F. Fitzwygram ...	1	0	0
" 26	Mr. E. Newson	0	10	6
" 26	" T. E. Angers ...	1	1	0
" 28	" J. W. Anderton	0	10	6
" 28	" W. E. Schofield	2	2	0
" 31	" G. Ball, jun.	2	2	0
Feb. 3	" Hy. R. Perrins...	1	1	0
" 3	" A. L. Gibson ...	1	1	0
" 7	" J. H. Ferguson...	0	10	6
" 13	" W. Woods.....	0	10	6
" 13	" J. S. Carter	0	10	6
" 13	" Wm. Broughton...	0	10	6

1885.		£	s.	d.	1885.		£	s.	d.
Feb. 13	Mr. R. Roberts	1	1	0	Aug. 7	Mr. E. Woodyer	1	1	0
„ 13	„ W. Williams	1	1	0	„ 7	„ T. W. Riddler ...	1	1	0
„ 13	„ S. Locke	1	1	0	„ 7	„ Hy. Hogben	0	10	6
„ 13	„ H. Ferguson	1	1	0	„ 7	„ Jos. Woodyer ...	1	1	0
„ 16	„ J. M. Axe	0	10	6	„ 7	„ Peter Walker ...	0	10	6
„ 16	„ W. Cawthorn ...	0	10	6	„ 7	„ G. H. Darwell ...	1	1	0
„ 28	„ Thos. Aubery ...	0	10	6	„ 12	Messrs. P. Taylor and			
Mar. 4	„ John Lawson	1	1	0		Son	2	2	0
„ 4	„ A. Lawson	1	1	0	„ 22	Mr. Wm. Dobee ...	1	1	0
„ 5	„ W. F. Peacock ...	1	1	0	Sept. 1	„ Thos. Cave ...	1	11	6
„ 11	„ John Brizzell	1	1	0	„ 19	„ Philip Deighton ...	0	10	6
„ 11	„ J. B. Wolsten-				„ 20	„ A. Bains	1	1	0
	holme	1	1	0	Oct. 22	„ T. Hopkins	1	1	0
„ 27	„ Hy. Blunt	1	1	0	„ 24	„ A. Over	0	10	6
May 15	„ F. Blakeway	1	1	0	Nov. 2	„ J. M. Broad	1	1	0
„ 17	„ J. Brizzell, deposit				Dec. 16	„ Mr. Nuttall, de-			
	on account of					posit on account			
	defence	5	0	0		of defence	5	0	0
June 24	„ J. E. Barling ...	0	10	6	„ 21	„ Thos. Briggs	1	1	0
„ 29	„ T. Greaves	1	1	0	„ 21	„ G. Morgan	1	1	0
Aug. 7	„ J. Scrivens	0	10	6					
„ 7	„ Thos. Secker	0	10	6					
							Total £105 15 6		

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from T. H. Lewis, Edinburgh; C. Gresty, Newcastle-on-Tyne; J. B. Gresswell, Louth; "Pharmacon"; R. Rutherford, Edinburgh; T. Greaves, Manchester; A. W. Hill, London; Fred. Smith, A.V.D., London; H. Tweedley, Glasgow; J. Malcolm, Birmingham; R. H. Dyer, Limerick; J. J. Meyrick, A.V.D., London; "Sack"; J. H. Steel, A.V.D., Bombay; C. Cunningham, Slaford; J. F. Oliver, London.

BOOKS AND PAMPHLETS: *H. Dalziel*, Mad Dogs and Hydrophobia; *Encyklopädie der Gesamten Thierheilkunde und Thierzucht*; *Studies from the Biological Laboratory of the John Hopkins University*; *Bulletin of the Société Centrale de Médecine Vétérinaire*.

JOURNALS, ETC.: *Revista Popular de la Exposicion Rural Internacional*; *Echo Vétérinaire*; *Journal of Agricultural Society of Victoria*; *American Live Stock Journal*; *Deutsche Zeitschrift für Thiermedizin und Vergleichende Pathologie*; *Wochenschrift für Thierheilkunde und Viehzucht*; *Admiralty and Horse Guards Gazette*; *Mark Lane Express*; *Live Stock Journal*; *Hufschmied*; *Bladen tot Bevoordering van Veeartsenijkunde in Nederlandsch Indie*; *Journal of Comparative Medicine and Surgery*; *Lancet*; *British Medical Journal*; *Clinica Veterinaria*; *Presse Vétérinaire*; *Archiv für Wissenschaftliche und Praktische Thierheilkunde*; *American Veterinary Review*; *Recueil de Médecine Vétérinaire*; *Revue Vétérinaire*; *Journal de Médecine Vétérinaire et de Zootechnie*; *Edinburgh Medical Journal*; *Annales de Médecine Vétérinaire*; *Journal of Microscopical Science*.

NEWSPAPERS: *Baltimore Sun*; *Scotsman*; *Bell's Weekly Messenger*; *New York Herald* (four copies); *Madras Mail*; *Sunderland Herald and Daily Post*; *Alnwick Guardian*.

THE VETERINARY JOURNAL

AND

Annals of Comparative Pathology.

MARCH, 1886.

CASE OF RABIES IN A HORSE.

BY F. WALKER, M.R.C.V.S., 1ST LIFE GUARDS, HYDE PARK BARRACKS,
LONDON.

ON the morning of September 10th, 1885, the regiment was at drill on Wormwood Scrubs, and had just finished performing out-post duty. Some horses of A troop were dismounted previous to returning to barracks, when a black retriever dog was seen in close contiguity to A 36. The horse, as horses mostly do, put down his head, as if anxious to find out what the dog wanted. Without the slightest previous warning, the dog seized the horse by the upper lip, inflicting severe lacerated wounds on the outer and inner surface.

The case was reported to the officer in command, who, with commendable prudence, ordered the man to mount and return quickly to barracks and report the case to me. When I saw the horse about three-quarters-of-an-hour after the injuries had been inflicted, I cauterized the wounds deeply, and had the animal placed in a box in the infirmary. Medicines were administered with a view of keeping the horse in a perfectly healthy condition. The horse remained under my supervision until the 13th of October, a period of five weeks, when apparently in perfect health and condition, he was sent to his ordinary duty.

A careful examination was afterwards made every second or third day by myself, to discover, if possible, any symptoms of Rabies that might be in course of development.

Nothing unusual was observed until the horse was at riding school on the 6th of January, a period of 119 days from the dog's attack. He was then seen to be unusually restless, with frequent inversions of the lips and spasmodic twitchings of the muscles of the neck.

Noticing a most unusual expression—"cunning, blended with ferocity"—in the face of the horse, I sent him at once to the infirmary, placed him in a dark loose box, and with great difficulty succeeded in administering a strong opiate. The man who had ridden and groomed the horse assured me he had not previously observed anything unusual. The horse, he said, ate well and drank freely, but he remarked, on the morning of the 6th, "When I was going round the school he gave two or three shakes such as I never knew a horse to give. Not shivers," he said, "or shakes like a horse gives when he is a bit tired, but more of a tremble."

After a period of three hours, the horse getting more restless and excited, I ordered a second opiate, but when the farrier major attempted to give it, the horse rushed at him and seized the sleeve of his jacket. Seeing the danger of trying to approach the animal, I had the box locked and kept the patient perfectly secluded. The paroxysms of fury increased in intensity for a period of thirty-six hours, the horse attempting to destroy everything within reach, when death ensued from exhaustion.

Autopsy nine hours after death:—

The contents of the abdominal and thoracic cavities were quite healthy. A careful examination of the brain was made, and compared with that of a healthy horse, but no material difference could be detected.

I do not venture to offer any pathological remarks on this case, as my experience of this horrible and incurable disorder is very limited. Only two cases have come under my observation in a practice extending over twenty-five years—the present one, and the other, an officer's charger in India, which was shot by the owner soon after the delirium commenced. This horse was known to have been bitten by a pariah dog some two or three months previously.

ABSCESS IN THE OS SUFFRAGINIS.

BY J. C. JAMES, M.R.C.V.S., THORNBURY, GLOUCESTERSHIRE.

THE rarity of the occurrence of the formation of an abscess in the bones of animals, induces me to send the history of the following case for publication:—

The subject was a light-legged cart-horse, six years old.

In attempting to break through a hedge which separated the home field from an orchard, the animal became inextricably fixed in an iron drag, which had been placed there by the farmer's son. Being a high-spirited horse, he struggled violently to free himself, but without effect; for it was not until the irons had been un-

screwed and taken apart that he was liberated. It was then found that he had sustained severe injuries to the legs. The near fore-leg was lacerated from the knee to the fetlock joint, laying bare the tendons, ligaments, and bone. The off hind-leg was severely bruised, but the skin was not lacerated. Next day the animal exhibited symptoms of great pain in the off hind-leg, and was consequently placed in slings. Appropriate treatment was prescribed, and morphia was given subcutaneously to combat the increasing pain. The parts between the fetlock joint and foot swelled, and in three or four days broke in the heel, and synovia, in rather large quantities, made its appearance, indicating that the synovial sheath of the tendons had been injured ; also an abscess was opened on the inside of the coronet. Treatment was continued, and the animal improved so much as to be able to bear a little weight on the foot for a week, when the pain returned, and he became very violent when the parts were manipulated. The front of the foot, and particularly the front of the os suffraginis, became enlarged and extremely painful.

Everything was done to alleviate the pain and suffering, but it soon became evident that the animal must succumb, which he did in about a fortnight from the time he received the injuries.

The fore-leg, which at first appeared to be the worse injury, had made good progress towards recovery.

On making a *post-mortem* examination, the os suffraginis bone was found to be enlarged, and somewhat spongy at the front ; and on making a longitudinal section, an abscess, nearly as large as a walnut, was found in the bone, at the lower part of its middle third, and containing thick, healthy-looking pus. The cancellated structure around was softened and the cancelli enlarged.

A CASE OF MELANOSIS.

BY J. MATTHEWS, F.R.C.V.S.

THE following case, though by no means rare in veterinary practice, proves interesting, I think, from the advanced stage it had reached whilst the animal was enjoying apparently good health. Externally, there were only three or four small melanotic tumours on the neck and tail, and I was informed that, notwithstanding its age, twenty-one years, it had performed fast work without inconvenience, till a short time prior to my seeing it ; but though its appetite was unimpaired, it had lost condition for a few months previously.

The patient, a white mare, was purging excessively, fæces being very fetid, urine very dark in colour, and micturition, though pain-

less, very frequent. Death took place in twenty-four hours after, apparently from exhaustion supervening on acute Diarrhœa.

A *post-mortem* examination revealed melanotic infiltration in the spleen, which was enormously enlarged, and weighed $59\frac{1}{2}$ lbs., and with the liver, similarly diseased, weighing about 34 lbs., occupied half the abdomen. Most of the other glands were similarly diseased; and lodged in the bifurcation of the aorta was an egg-shaped tumour, embedded in fat, tinged with black. Beneath the pleuræ, peritoneum, and endocardium, and pervading the lymphatic glands, were countless tumours, varying in size from that of a pea to a small nut.

The intestines were shrunken and very pale, especially the colon and cæcum, which were half their natural size. The voluntary muscles were paler in colour than usual.

ON THE TREATMENT OF AN EXTENSIVE LACERATED WOUND IN A THOROUGHBRED YEARLING FOAL.

BY J. BRODIE GRESSWELL, LOUTH, LINCOLNSHIRE.

ON November the 17th, last year, the writer was summoned to a very valuable thoroughbred yearling foal, at a farmstead near Horncastle. The case was one in which the extensor muscles of the near fore-limb were cut completely through to the radius, and were much mangled and lacerated. The extensor metacarpi magnus hung down about seven inches, and the skin was torn transversely and longitudinally. These injuries had been sustained about five hours before my arrival.

Having removed some portions of mangled tissue, now cold and non-contractile—some two ounces or so, in all—the writer proceeded to sew together the several muscles. The sutures employed were those of carbolised cat-gut. The ends of the extensor metacarpi magnus were much lacerated. They were pared a little, and it was thought advisable to sew them firmly together, after inserting a small drainage-tube between them and the neighbouring muscles. The drainage-tube was carefully dressed with ointment of eucalyptus, iodoform, beeswax, and lard. The antebrachial aponeurotic fascia was then stitched together with an uninterrupted suture of antiseptic silk. Lastly, the skin was sewn together with medicated silk, an aperture being left at the lower end for the drainage-tube. The external parts were then cleansed thoroughly with weak antiseptic lotion, and the whole wound was covered over with a bundle of carbolised tow. Pressure was applied by bandages, so as to support the lower parts of the severed muscles. From the first no fomentations were allowed. On November 20th there was slight swelling, which had burst several of the skin

sutures. There was no discharge, excepting a little from the drainage-tube.

On the following day the discharge was more abundant, and most of the skin sutures had burst through. The pulse was 48; the temperature 101.5° , or one degree above the normal. The parts were now dressed with the antiseptic ointment above-mentioned. On November 24th the muscles had firmly united, and the skin flaps had separated exactly four and a half inches. Exuberant granulations were abundant. The drainage-tube was now removed and reinserted. The wound was now ordered to be dressed twice daily. On November 27th the skin flaps had become adherent to the muscle, and the tube had ceased to discharge. The muscular tissue projected somewhat out of the wound. On December 3rd the injured part was perfectly healthy; the skin wound was only three inches in length. The granulations were not elevated above the level of the integument.

On December 8th the foal was liberated, and on the 22nd all that remained visible of the wound was a healthy narrow streak, about one-eighth of an inch broad and two inches from end to end.

At no time in the progress of the case did the temperature rise more than one degree above the normal. The frightful laceration of the divided muscles was the factor in the case which rendered it of such a serious nature. The foal made a perfect recovery, and now shows no signs of its serious mishap.

The features in this case which are perhaps of most striking interest, are the absence of febrile symptoms and the complete and rapid recovery where such extensive injury had been inflicted. In severe wounds such as these the judicious local application of antiseptics, general care, judgment, and management, are of course of far greater importance than internal treatment, though this, too, must in nearly all cases contribute to a favourable result, where fortunately our efforts are thus rewarded.

The foal was, of course, tied up during the process of healing, and the limb was so carefully bandaged that no movement in it could possibly hinder the kindly operations of Nature. All was done that could be done to ensure the union of the various severed structures. The extensively-lacerated wound was most thoroughly cleaned, and the greatest pains were taken to sew nicely and carefully together the muscles, their more immediate coverings, and finally, the skin. For some time, as might be expected, the union of the divided ends of the muscle thus artificially brought into intimate contiguity was not complete. There was to be seen a slight groove or depression, which was afterwards gradually filled up with new tissues, and at length it entirely disappeared. At the present time scarcely a sign or trace of previous injury re-

mains. The wound has entirely healed, the various structures, both muscular and connective, having grown together most completely.

THE BURSA MUCOSA ILIACA AND ITS CONNECTION WITH THE HIP-JOINT.

BY MAX KETTRITZ, GRADUATE OF THE DRESDEN VETERINARY SCHOOL.

THE point which I have the honour to bring to notice, although a small one, is, I think, of sufficient interest and rarity to justify its publication. I have personally made a sufficient number of *post-mortem* examinations to enable me to gather a certain amount of clinical facts in regard to it; for I have failed to find, in all the veterinary works I have consulted, any information bearing upon this particular subject. And yet the above-mentioned connection is so frequent in the horse, that out of twenty necropsies I have found five instances of it.

To obtain a proper conception of the anatomical situation of the bursa, it will be necessary that we review and bear in mind the anatomy of the part. It appears as a fold of the capsular ligament, which is always to be seen in close connection with the free margin of the cotyloid cavity; it extends downwards, to become attached around the outer margin of the articulatory surface of the head of the femur, and it is lined by synovial membrane, which also invests the pubio-femoral and teres ligaments. On the anterior side of the joint there often remains an important opening, sometimes small, at other times large. Through this opening the synovial membrane passes, extending on the external side of the fibrous capsule, and forms the posterior wall of the bursa; then turns again below, above, and to the side, forming seemingly a closed sac over its internal wall. As soon as the synovial membrane passes out of the opening in the capsular membrane, its appearance and texture appears rarely to change. I neither found it smooth nor bright when it passes over the head of the femur and the acetabulum. The anterior wall of the bursa is very thin, besides, and it is only formed by the above-mentioned extension of the synovial membrane. If the bursa is not in connection with the joint, the membrana capsularis is everywhere shut, and no other opening is to be seen. The connection is always found on the posterior side, so that the diameter of the length of the opening is nearly always parallel to the diameter of the width. The opening in the bursa is almost always oval and simple, though in several cases divided into several small openings by quite narrow fibrous stripes. That these openings, divided by stripes of fibrous tissue, are faults of conformation, there is no doubt; they are not

laceration of the capsular ligament, as mentioned by several authors.

As diseases of the bursa iliaca appear most frequently as inflammatory affections, on account of the situation of the bursa between a firm tendon and the bone, also because of their functions, such an inflammatory process, which also affects the capsular ligament, alters the fluid contained in the bursa, which must, of course, affect especially the hip-joint, if they are in connection with each other. This deserves the greatest attention, as some diseases of the bursa iliaca are sometimes mistaken for diseases of the hip-joint. Very insignificant injuries during life have been found, in some cases in which *post-mortem* examinations have been made, to have caused very serious destruction of the articular surface of the joint, the bursa being primarily affected and the joint only secondarily. Abscesses in the vicinity of the hip-joint have produced phenomena that have been erroneously diagnosed as Coxarthrocace, but which was only Coxalgia. In patients in which the diagnosis had been a psoas abscess, large cavities, containing pus, in the hip-joint have been revealed, and which no one could have supposed to exist in such a place. In these cases the effusion of pus has generally filtered through the bursa and its opening, into the hip-joint. A disease of the bursa which changes its secretion also alters the synovial fluid of the hip-joint. The abscesses so frequently met with in inflammation of the hip-joint correspond generally to a true infiltration of pus, which takes place by the so-called opening in the hip-joint.

A brown mare, which gave indications of being badly nourished, from its emaciated condition, and suffering from unsanitary surroundings, became lame for the first time a year ago, and the owner therefore consulted a veterinary surgeon. In course of time several veterinary surgeons had been consulted, and they all were of opinion that it was an inflammation of the hip-joint, and gave an unfavourable prognosis. The patient, on being made to move, manifested signs of intense pain when the toe (off hind) was brought to the ground, and it was instantly withdrawn, with convulsive spasm of the muscles of the limb. The whole limb was considerably swollen, and on palpation it imparted a feeling of fluctuation. In the inguinal region a large abscess formed, which the veterinarian called in opened. The case was soon after brought to me for treatment by the owner, and the interesting features were—very marked lameness, the limb projected outwards, and the leg, which at first seemed longer, on subsequent careful examinations proved to be shorter. On examining the limb, I found that flexion and rotation increased the pain in the part to an alarming extent, as did pressure on the external muscles of the quarter. Pulse 52, of fair volume, but very compressible; the

radial pulse imperceptible. Physical signs of lungs, seeming normal; urine, 1,040, acid, no albumen; appetite poor.

With the exception of a previous attack of Pneumonia and a severe cold, the animal has enjoyed good health up to this time.

That the disease was an inflammation of the hip-joint, there was no doubt; but it was impossible to give a precise anatomical diagnosis, owing to the want of more definite symptoms. The prognosis was, after nearly a year's lameness, very unfavourable. The strongest therapeutical and surgical measures having been resorted to in vain, the patient was killed four weeks after my first consultation.

Necropsy, six hours after death:—

On opening the thorax, the lungs did not collapse; in the anterior edge of the upper lobe were several caseous nodules; a large quantity of serum could be expressed. The substance of the heart presented a waxy appearance on section. The cavities were filled with decolorised blood-clot; valves were closed. The pericardium did not contain any fluid. Liver and kidneys were hyperæmic. Under the ligamentum Poupartii was a canal by the crural vessels, filled with ichorous matter; higher up, another canal ran deeply inwards, as far as the tuberosity of ischium. The ichorous canal followed a course as far as the origin of the psoas muscle, where it terminated. Close to the place where the psoas passes under the crista, was another abscess. The femoral veins were much enlarged, so much so as to admit of one's thumb being passed into them. On the inner and posterior side of the great trochanter was a cavity filled with pus, extending from the muscles to the capsular ligament by a small opening. The bursa was very large and dilated, being filled with ichorous matter which had burrowed deeply in several places into the muscles, and there were several fistulous openings. Between the bursa and the joint was a communicating opening, through which was seen the carious head of the femur. The entire head of that bone was diminished in size, but the neck was only partly carious on its anterior surface; the synovial membrane and the cartilage were destroyed in patches as far as the process had gone. The bursa was converted into a dense fibroid mass of almost cartilaginous density; in some places it was thickened with œdema of the sub-synovial tissue. Flakes of lymph were mingled with the synovia, for it is known that, like the great serous cavities, the bursæ are in direct connection with the lymphatic and inflammatory products, and they are consequently absorbed from them with great readiness. The surface was eburnated and marked with ridges, produced by friction. Perforations occurred in it, giving it a sieve-like appearance. The cartilage was loosened and necrosed. The synovial fluid was albuminous in character, turbid and puriform.

Microscopical appearances :—

The substance of the synovial membrane and the synovial tissue were crowded with many small lymphoid cells, which were deposited in the interstitial tissue in a delicate network, and contained many new capillary vessels. These lymphoid nucleated cells appeared to be identical with those lining the outer zone of a tubercle nodule.

THE FRESH JUICE OF *CHELIDONIUM MAJUS*; A REMEDY FOR OPACITIES ON THE CORNEA.

BY THE SAME.

FOR opacities on the cornea, I have applied for two years, with very rapid and favourable results, the fresh juice of *Herba Chelidoniæ*. I cut off a little piece from the flower-stalk of the fresh plant, press it between my fingers, and allow a drop of the juice which exudes to drop upon the cornea, whereupon the conjunctiva sclerotica becomes quite red, and the opacities disappear in a short time.

Knowing that this was used for the eradication of warts, caused me to guess that it might be effectual to remove opacities from the cornea.

LYMPHADENOMA.

BY J. C. DWYER, M.R.C.V.S., M.R.C.S., ARMY VETERINARY DEPARTMENT.

History.—"Dymchurch," a bay mare, aged twelve years, belonging to the Riding Establishment, Woolwich, joined the service in 1874, since which time she has been at regular work, and always carried good condition. About fifteen months ago she was noticed to have acquired the habit of wind-sucking, and a falling-off in condition dates from this period. She continued at regular work until May 15, 1880, when the first entry is made against her for "Debility: light in condition, but otherwise in good health and spirits. A ball of carbonate of ammonia and gentian was given in the morning, and gentian, sulphate of iron, and magnesia mixed with the evening feed. Turned out to graze during the day." The second entry is August 11—"Debility," the prominent symptom being rapid respiration. From this date the patient became rapidly emaciated, although the appetite remained unimpaired. The respiratory murmur was local on both sides; there was, however, a complete absence of stridor or distress, and the impression conveyed by the respiration, as regards the condition of the patient, was that of extreme feebleness and prostration. Opinions varied as to the seat of disease, one class tending towards the lungs as the primary seat, others towards the mesentery. Tubercle was

thought to be the most probable cause of the mischief, and the patient was isolated from the 27th August until death occurred on the 2nd of September.

Post-mortem Examination.—Fourteen hours after death.

Head.—Not examined.

Thorax.—Lungs irregularly discoloured, somewhat congested, with green hepatization at apices and margins.

Abdomen.—Large quantity of serum in abdominal cavity. Intestines of a pale slate colour, innumerable tumours in mesentery, the larger ones being of the size and much resembling damsons in appearance. Spleen contained from thirty to forty tumours, the majority being of the size of a tennis-ball, and weighed twelve pounds. They consisted of an external capsule, the interior being composed of glandular substance common to the lymphatics. No tubercles present in any organs. Liver healthy, with a single hydatid cyst, the size of a hazel-nut, on surface.

Commentary.—Having had the very great satisfaction of making a *post-mortem* in this case, we are able to compare the symptoms and the *post-mortem* appearances. The features which strike one are, the absence of any history of Colic; as a matter of fact, she never had any symptoms approaching a Colic attack, though the onset of the disease probably dates from the falling-off in condition—*i.e.*, fifteen months prior to death. The hurried respirations remain unaccounted for by the *post-mortem* appearances, the organic disease of the lungs being altogether insufficient to account for it. Was it sympathetic? Or could the spleen, so greatly enlarged, have mechanically interfered with the action of the diaphragm? Extreme marasmus, accompanied by a good appetite, would seem to point to some interference with the passage of the chyle into the blood, and it was this view which gave rise to the opinion that the mesenteric glands were the primary seat of mischief. Beyond this we did not get; and when all the surrounding difficulties of diagnosis in an obscure case of this character are thought over, it is not, perhaps, altogether to be wondered at that we failed to alight upon the actual cause of all the mischief.

OBSERVATIONS ON SOUNDNESS.

BY R. H. DYER, M.R.C.V.S., LIMERICK.

(Continued from p. 15.)

“BREAK-DOWN,” as it is commonly termed, is a very significant one, inasmuch as it invariably puts a stop to the career of an animal for some time, and often for ever interferes with his racing quali-

fications, depending upon the seat and nature of the injury—which injury, *en passant*, is generally produced by violence. There are several kinds, one of which is met with in young, leggy, and well-bred horses, which is nothing more than a rupture of the fibres of the cellular tissue connected with the flexor tendons; a second is when the sheath of the tendon has given way; a third, when the tendon itself has been injured; and a fourth, when the lesion is situated in the suspensory ligament. There are other kinds of “break-down” known to horsemen, such as giving way of the lateral ligaments of the sesamoids, and also a similar injury to the tendons, etc., below the pastern-joint. The appearances met with in this affection are familiar to most persons, and consequently very few can be found to invest money in an animal possessing this defect. There are, however, horses purchased by a certain class, who find them extremely useful as porters for light work, car-drawing, and other labour where, happily, they do not draft more than from ten or twelve stone weight. Horses which have been properly treated are found to do their work in a way satisfactory to their riders and drivers; but it must be confessed that a very long time is occasionally required to bring about such a result, especially when the lesion has been a serious one. The principal thing veterinary surgeons have to consider in examining such a horse, is to thoroughly understand the parts which have been injured, to reflect upon the structure and function of these parts, and what the nature of the repair to be effected is, and what work will he be called upon to perform. These are the principal questions to be considered when we find such a case presented for examination. If merely cellular tissue has given way, it becomes a simple affair; if sheath of tendon, our interest increases; should it be a tendon itself, more serious still; and if the suspensory ligament be the seat of injury, then it behoves us to look not merely closely into the matter, but we must give a few moments to thought, and endeavour, if possible, to ascertain with certainty whether the injury has left behind any impairment of action: for very much of our reputation depends upon the kind of opinions we advance when an unsound animal is recommended to be purchased. In these days we shall be frequently called upon to scrutinise an unsound horse, and very often, no doubt, advise our clients to take the animal, although *pronounced* unsound. The most serious of all the “break-downs” I have met with, is when the lateral ligaments of the fetlock-joint participate with that of the suspensory, being, as it were, “off-shoots” of this, as some term it, “tendon”; and we may naturally seek for a participation of any great violence sustained by that ligament in the small appendages which are thrown off for the support of the sesamoids as well as of the extensor pedis, from the

carpus to the joint below, made up, as it is, of the lower end of the metacarpal bone, the suffraginis, and the two sesamoids. So much diversity of structure is here met with, that we need never feel, as some do, astonished to find our hands and eyes at fault when lameness exists in the front leg, if we can neither see nor feel anything wrong upon a slight examination. If we will but take into consideration the fact of the suspensory ligament being unlike any other ligament or tendon, and that bursæ are situated immediately underneath it, we can, I think, account in some measure for the difficulties we occasionally meet with in diagnosing lameness.

I fear we do not sufficiently bear in mind the many peculiarities which exist in the various structures present within a given space. I have before hinted that the fetlock-joint is not only an important one, but exceedingly complicated as a piece of mechanism. For example, let us look for a moment into its component parts, or, in other language, the anatomy of the joint—taking into account the different textures which go to make up the whole; then the situation of those parts, as they are related to each other in a passive state, comparing them with each other during locomotion, and consider their uses; and, lastly, dwell a short time upon the pathology of the whole joint, which will, I have no doubt, give us some idea of the many difficulties met with, and account for some of the failures which are occasionally witnessed by those who are more sanguine than others in their practice. There are several methods adopted for ascertaining the probable extent of injury in a break-down. The usual one employed by myself is that which others doubtless make use of, which is simply flexion and extension, and displacing the common integument both upwards and downwards, as well as in a lateral direction. By these means it will soon be learned whether any change has taken place in any of the structures. In one instance, an enlargement of the parts will be observable; secondly, the skin will be closely adherent to the sheath of the tendon, the tendon and its sheath cemented together, the tendons and suspensory ligament become as one.

In another it will be found that the ligament is fixed to the metacarpal bone, and, lastly, it becomes apparent to the close observer that the suspensory ligament is so changed that it has lost its peculiar character, a hard cartilaginous substance being produced in its place. In each and every case impairment of action is the result, the extent of which will depend upon the nature of the parts affected, and, it may be added, the derangement of function will be visible in the same ratio as the alterations of structure which have been attempted to be described. A short time ago I met with a case in which integument, cellular tissue, sheath of

tendon, tendon, ligament, and metacarpal bone were all amalgamated.

This animal was destroyed by my wish, and it afforded much information of an interesting kind afterwards. On looking at a dried specimen—a dissection for ligaments and tendons of a fore-leg—we shall be forcibly struck with its beauty and admirable arrangement for all the purposes of locomotion. At the same time we cannot avoid thinking how much simplicity is manifested in some portions of the limb, and it will be conceived without much reflection that, the simpler the arrangement, the less liability there is for impairment of function. If we take, for example, the shoulder-joint, made up, as it is, of soft parts chiefly, we can soon understand how it is those parts are so seldom found to suffer injury. We all know that the farriers of old, and some of the modern practitioners of veterinary surgery who do not possess a knowledge of anatomy, will look to the shoulder for most cases of lameness in the front limbs. Those, however, who have received a liberal education are fully aware of the many blunderers who have preceded us.

Take another example—the structure of the parts connected with the large metacarpal and the smaller bones. We find the anatomy between the lowest carpal joint and the fetlock particularly simple, which will account for the immensity of wear and tear these several parts will bear. Nothing short of a shock will disturb these structures, if we except that of Splint and what is termed “Windgall.” If they were not so constructed, disease would more frequently manifest itself.

I believe it is a law in mechanics that a simple spring is not so liable to err as one of a complex character; and so it is in the animal machine. We must not lose sight of other arrangements in this particular part of the animal mechanism. For instance, we should well consider that the metacarpal bone, the suffraginis, and the coronal bone are standing one upon another, *perpendicularly*. There is, indeed, not much obliquity at any part. We may, therefore, take it for granted that there must be considerable concussion, especially if the parts below are upright also. These reflections will guide us in some measure as to any opinions we may form, when spoken to in reference to upright joints. On looking at the close connection existing between the metacarpal bones and the suspensory ligament, we can readily understand how an abnormal growth of bone must interfere with the even working of those parts (if carried to any extent), and more particularly by the setting up of inflammation. We sometimes hear of the tendon being rubbed against by a splint and causing lameness. I am inclined, however, to believe that the parties who hold such

opinions know but little of the subject upon which they dilate. If we look closely at the suspensory ligament at its bifurcation, we shall remark that it is making its way towards the lateral portions of the sesamoid bones, that these offshoots become intimately connected with those small bodies—an arrangement which tends to hold them in position. Still, it can be seen they have play enough to go out of position if forced. If any portion of the suspensory ligament, either above the bifurcation or below, becomes materially injured, it must of necessity include some portion of this joint. It is the peculiar arrangement of the ligament, running, as it does, from behind the limb to the front, to form its attachment to the extensor tendon, which accounts for the fact that serious lameness is the result of a break-down of these particular structures; and it must be observed that when a limb is very upright and the fetlock goes wrong, in many cases it will be found that inflammation will set in and include all the structures found at this place. I have some specimens, which have been in my possession some time, taken from young horses—hunters—which are remarkable for what I have stated, viz., that all the parts connected with the fetlock-joints are diseased, more especially the bones. I may describe one case, which will suffice for all. A bay gelding, with upright pasterns, was ridden by a client—who was much too heavy and too hard a rider for so young and unseasoned a horse—for some months, when the animal gave way; in other words, broke down in one fetlock-joint. The other was slightly affected also. The owner treated the case at his stables for some weeks in the usual manner, by employing water.

(To be continued.)

ON RELAPSING FEVER OF EQUINES.*

BY J. H. STEEL, M.R.C.V.S., ARMY VETERINARY DEPARTMENT, BOMBAY.

IT has recently been my good fortune to study, with exceptional practical facilities, a disease of animals of the Horse tribe, which is one of very serious import in India certainly, probably also in other countries. This disease is of special interest from a comparative pathological point of view, because it resembles very closely in its phenomena, as observable *ante* and *post mortem*, that of mankind, which has been dealt with in such an elaborate manner by your President in his work on "Spirillum Fever." Unfortunately in some respects, but fortunately in others, I had an opportunity of studying Dr. Carter's work only after I had completed my official report on the Burmese disease, which is being printed under orders from the Madras Government.

* A paper read before the Medical and Physical Society of Bombay, to appear in the Proceedings of the Society. A sequel to Veterinary-Surgeon Steel's Official Report on Relapsing Fever among Mules in British Burma.

I might have re-prepared the report in question, but I preferred to let what was written remain, because it would, as being quite independent of modelling on Dr. Carter's work, be of greater value for comparison with the latter, if it be permitted to compare my report with so elaborate a work as Carter's "Spirillum Fever." I think the comparison will throw into great prominence the close relationship (probably not amounting to absolute identity) of the two disorders—that of man and that of the equine patient. And as the induced disease has in each case been studied as affecting the monkey, I think it probable that an examination of the phenomena of the disorders as thus capable of study, *on a common ground*, will be found to yield results of the greatest value in the advancement of pathology. Another matter to which I wish to draw your attention is the fact, which I believe I have amply established, that whereas by certain methods, which I shall indicate, the equine disease may be induced in carnivora and omnivora, we have failed to communicate it to certain ruminants in a detectable form. This may be pregnant with important results in the future, from a prophylactic point of view; it may be that the observers yet to come may, by development of this immunity of certain ruminants from the induced disease, be able to determine how it may be prevented and cured in horses, ponies, and mules—animals in which it has hitherto proved *invariably* fatal.

I append to this paper specimens of the mule disease as taken from my "Record of Sick Cases." From them it will be learned that the disorder is essentially a Relapsing Fever which wears out the patient, because the amount of injury to the system during the fever waves is greater than can be compensated for by the recuperation during the periods of less fever, the interundular phase. In this disease fever is a prominent system, but fever of a special relapsing character as detectable by simple clinical methods, but much better by use of the thermometer and thermography (to ensure exactitude the two must go together, and it will be found that the resultant tracing is conclusive evidence of the nature of the attack). *I look upon Relapsing Fever as remarkable on account of the exactitude with which it may be diagnosed, without the smallest chance of error.* Even if the thermometer failed, we might still exactly determine the presence and nature of the disease by means of the microscope and Weigert-Koch blood-stainings (the adoption of which by me in the inquiry was due to suggestions kindly telegraphed by Dr. Vandyke Carter). A microscope of very average power suffices for all purposes of diagnosis in this disorder, and for the stainings I found that much simpler manipulative methods sufficed than one would anticipate from the descriptions generally given. Simplicity is, doubtless, an advantage in all clinical inquiry, but it is an absolute necessity to a veterinary worker in a country where skilled assistance and elaborate appliances are not obtainable, and where the only laboratory procurable is one improvised in some corner of a Government building. I do not think pathological inquiry loses by simplicity of methods; the amount of ground got over compensates for deficiency in elaboration of methods, and the richness in numbers of observations atones for the deficien-

cies of each individual one, and so guards against flagrant error. Simplicity of methods enables us also to utilise unprejudiced persons, by obtaining their opinion on matters of simple appearance where our preconceived ideas may tend to lead us into error. I am able to show you some sketches of the fever parasites made by a highly intelligent Transport Conductor (Mr. Smiles) from stained-blood specimens which I lent him with my small microscope.



He has accurately delineated the *spiral* form of the parasites, a point in favour of which my mind was biased, because my statements with regard to it have been called into question. You can examine this matter yourselves from my specimens. Careful observation of blood obtained from the living animals showed that—(a) the parasites were invariably present at times in all cases of the disease ; (b) they were not detected in any unaffected animal ; (c) the phases of the disease bore a definite relation to the frequency and activity of the parasites in the blood, fixed within not very wide limits ; (d) it was easy to account for the phenomena of the disease by accepting the hypothesis that it was due to the parasites ; (e) blood containing parasites conveyed the disease to animals previously healthy, and the more numerous and active the parasites in the blood the greater its virulence ; (f) the presence of a single parasite in a drop of fresh blood sufficed as proof of the animal from which the blood was taken being a victim of Relapsing Fever. This was repeatedly proved clinically, especially in the induced disease. I think these facts amply establish two important points :—

I.—That in Relapsing Fever of equines we find a specific organism in the blood having such fixed and definite relations with the disease as tend to make the belief that the parasite is actually the contagium—a sound working hypothesis, if not absolutely proven.

II.—That the relations of the specific organism found in Relapsing Fever in mules are to that disease as are those of *Spirochaete Obermeiri* to *Spirillum* Fever of man ; and, moreover, the habits of the parasites of mule and man are very similar.

Relapsing Fever of equines has long been known to affect horses, mules,

and camels in the Punjab. I do not, for a moment, lay claim to having discovered either the disease or its concomitant parasite. The earliest scientific investigation was by Dr. Griffith Evans, now Inspecting Veterinary Surgeon, Madras Army, who discovered the blood organisms, and accurately described and recorded their activities and appearance in the fresh state. Dr. Evans proved the communicability of the disease from one horse to another, and from horse to dog, by inoculation. My claims as regards our knowledge of this disease are :—(1) that I have proved its true pathological nature, *i.e.*, that it is a Relapsing Fever ; (2) that I have established its communicability to the *monkey* by inoculation ; (3) that I have much amplified our clinical and pathological knowledge of the affection ; (4) that I have confirmed Dr. Evans' important discoveries ; (5) that I have indicated, with as much force as I am capable of, the very striking resemblance of the equine disease and its organism to those of man, and have insisted on their close *relationships* respectively, although I do not consider them absolutely identical.

The symptoms of either natural or induced Equine Relapsing Fever may be explained, generally, as progressive anæmia and its results, modified by the Relapsing Fever, with its peculiar exacerbations lasting some five days, and separated by intervals of about two or three days, continued until the animal ultimately succumbs. *Every animal which I have seen affected has died.* A characteristic feature of the disease, and one which seems to be in direct and close relations with the activity of the parasites in the blood, is the occurrence of *crops* of petechiæ, especially detectable on the conjunctivæ. They seem to occur when the parasites have attained their maximum activity and frequency, and when the temperature curve begins to fall. The skin occasionally, and the mucous membranes of the mouth and nostril frequently, are the seat of petechiæ and of very limited degenerations from malnutrition, probably the result of plugging of their small nutrient vessels. We see this plugging on a much larger scale bringing about a defective supply of blood to the limbs, especially the hind ones, for *ante-mortem* clots are very frequent in this disorder, and may prove the immediate cause of death. Frequent dropsies and sluggish vitality of all the tissues, indicate the depraved state of the blood. Some cases are acute, and prove fatal after supervention of general dropsy, associated with local congestions; probably the immediate cause of death in such is fever, for in my most acute case the animal, about an hour before death, gave the extraordinarily high thermometer reading of 110° F. In the chronic cases—that is, in about 96 per cent.—death is brought about by gastric perforation, *ante-mortem* clot in the heart, or simply failure of the heart's action as a result of debility. The animals remain standing to the last, and suddenly fall dead, or are recumbent and delirious for some days before the fatal result. Although the animals among which this disease has been studied as an enzoötic have been generally found in very poor condition, I have evidence that the disease is not, in prevalence or severity, in direct association with poverty of

condition or bad feeding. I have studied it among animals recently imported into Burma, but have concluded that the disease was not brought with them from the place whence they were exported, and *I have a great deal of evidence that the disease is not contagious nor infectious*. It occurs independently of extremes of temperature, during close seasons, and generally after exposure in the jungle, with corresponding irregular food supply and consumption of water from doubtful sources. Its fatality is most marked in October and November. It exhibits an evident disposition to invade certain localities in certain years, being either quite absent from those places, or, at other times, as is generally the case, remaining in a sporadic form in places once invaded. It prevails mostly in animals housed together in large numbers and in immediate charge of natives; the facts that grey and white mules suffer most, and that large mules are more often affected than small, were well marked in Burma. Animals of all ages succumbed, and sex seemed to exert but little, if any, influence. Treatment gave only negative results.

I am much inclined to lay considerable stress on the fact that predisposition seems to exert so little influence over this disease, because it seems to indicate that we have little chance of securing immunity by fortifying the system against it; and so our efforts must be directed to preventing the access of parasites to the system, or to their destruction after they have gained entry. How that access generally occurs naturally I cannot say, but I consider generally through the alimentary canal. Experiment proves positively that the disease may be obtained by ingestion of food containing the parasites, and also by the subcutaneous injection of fresh parasite-bearing blood. The disease incubates in the system for a period which varies, to an extent, with the mode of entry of the parasites, possibly also in accordance with other, as yet imperfectly ascertained, causes. Autopsy, by the indefiniteness of the lesions detectable, indicates the blood as the main seat of disease. So various are the organs involved, and so indefinite and irregular the changes which they undergo, that these changes can be attributed only to derangement of the tissue which is generally diffused throughout the body—the blood. I arrived at this conclusion some time before I assured myself of the presence of micro-organisms in the blood. One very remarkable lesion was found in three-fourths of my cases, and not noted in any of those carefully studied by Dr. Evans—gastric ulceration. I decided that it was really a lesion of the disease, although not invariably present, but was enabled to arrive at this conclusion only after most careful and elaborate observation and argument. The part of the gastric mucous membrane which specially showed this ulceration is the cuticular, and as that part is not found in the stomach of man, such ulceration could not be noted in Human Relapsing Fever. Occasionally, also, the villous portion was affected. The ulceration in some cases extended even to perforation. It was brought about by a peculiar yellow degeneration of the tissues, and I think it depends on embolic plugging of the small blood-vessels of the stomach. In acute cases

there is a diffused congestion of the lining membrane of the bowels ; in chronic cases there are small localised patches of congestion. Green gelatinous extravasations between the muscles of the thighs ; greenish-white blood clots in the larger vessels (a short time after death); *ante-mortem* clots, especially in the blood-vessels of the hind limbs ; œdema of the brain and spinal cord ; heart fatty ; kidneys congested or œdematous ; lungs congested—are the principal other lesions found after death.

The Comparative Study of the Disease.

In the mule there are certain peculiarities of different cases worthy of note :—*A.* Mule No. 13.—Experimentally I obtained the most typical chart from a case induced by the administration of mixed blood (containing spirillids) and water as a drink to a thickset mule in good condition. The effects were as follows :—

(a) An evanescent rise in temperature of nearly 2° on the evening of experiment.

(b) An *incubation* of six days.

(c) On sixth day after inoculation the *invasion* rise began ; it was 5° the first day, $\frac{1}{2}^{\circ}$ in two successive days (eighth and ninth) to 105° , a fall of 2° on tenth day, of over 3° to the normal on eleventh day. No appreciable rebound.

(d) *First fever-free interval* of two days (twelfth and thirteenth).

(e) *First relapse*.—A rise through $3\frac{1}{2}^{\circ}$ first day, 1° second day, 2° third day, to a maximum of $106\cdot5^{\circ}$ F. A fall through 4° on first day, and $2\frac{1}{2}^{\circ}$ on second day, to the normal.

(f) *Second fever-free interval* of two days.

(g) *Third relapse*.—Rise through $1\frac{1}{2}^{\circ}$ first day, $\frac{1}{2}^{\circ}$ second day, $\frac{1}{2}^{\circ}$ third day, to $102\cdot5^{\circ}$. The reading remains here for fourth day, and then on fifth day falls to normal, and on sixth day below normal.

(h) A slight *rebound* on seventh day, then fall to below normal.

(i) *Two days interval*, below normal.

(j) *Fourth relapse*.—Rise through 1° on first and 3° on second day to 103° , a fall of 2° daily to normal on second day.

(k) The temperature remains normal one day (thirty-fourth after inoculation).

(l) The next nine days are occupied by three acute rises to 103° , 104° , and 104° respectively, separated by two imperfect falls to 100° on third day and to 101° on fifth day. On the ninth of these days the reading is a little below the normal.

(m) It remains so one day.

(n) The next six days occupied by three rises and three falls on alternate days ($\frac{104}{100}$), ($\frac{102}{101}$), ($\frac{102}{99}$).

(o) The temperature remains about normal two days, then rises two days through 103° to $103\cdot5^{\circ}$, falls to 101° , rises to 102° , falls to $99\cdot5^{\circ}$, rises to $105\cdot5^{\circ}$. Then falls in two days (through 101°) to 99° .

(p) It rises to 101° next day, remains so one more day, then up to 103° , down to 101° , up to 105° . Then a marked fall to $98\cdot5^{\circ}$.

(q) Rise to 99° . Rise to 105° . Fall to 100.5° . Remains so for two days.

(r) Rise to 105° . Then fall for three days (102° — 99° —to 98°), remains so one day.

(s) Rise to 104° , fall to 101° —remains so one day. Observation ceases after 83 days from rise. The deductions to be made from this prolonged record are : that after an incubation of six days three fever phases can be observed, each consisting of a rise for three days and a fall for two days, and these are separated from each other by intervals of two days, during which the temperature regains the normal. Then occur less regular rises, variable in degree, and separated by depressions variable in degree, but seldom below the normal until towards the last. There is a tendency of the rises to group in threes. The parasites were in this case most often found at the periods of most fever. It is hardly practicable to determine the number of relapses here—the case was seventy-seven days under observation after the first rise of temperature.

B.—Mule No. 17 received subcutaneously, on right side of centre of neck, about 75 m. of blood freely drawn, without contact with air, from the jugular of No. 5. In this blood parasites were not at the time detectable. The following phenomena resulted :—

(a) An evanescent fall in temperature after the experiment.

(b) The *incubation* of 7 days.

(c) On the seventh day after inoculation the temperature rose, which continued four days to 104° (*i.e.*, 5° above normal). The parasites first appeared during the latter half of this rise. A fall of 2° on eleventh day was associated with increase in number of the parasites ; a second rise of 1° occurred then, and lasted one day, after which for five days there was a gradual fall through 4° to the normal. This fever phase lasted in all twelve days.

(d) There was no fever-free interval : parasites were absent in the later stages of fall.

(e) A sudden sharp rise of 3.5° in two days to 103.5° , and a slow fall, extending over six days, to the normal, constitutes the *first relapse*, giving a shorter and smaller curve than the invasion phase.

(f) From this a fluctuating rise for about twelve days, in the latter few of which the parasites were very numerous, preceded death—40 days after inoculation.

The prolonged period of incubation here is of interest in relation to the fluid used for conveyance of the disease, showing that the incubation is long when the parasites are not actively mobile in the blood.

C.—A remarkably similar curve to the last was obtained from a pony in which the disease proved very acute, fatal on the 20th day after inoculation. The parasites were extremely numerous here, and increased in numbers towards the time of death.

(a) The *incubation* was four days.

(b) On 4th—7th a rise of 3° occurred, the parasites being present through-

out. This was the earliest case of appearance of them in the blood of an equine animal noted by me (on 4th day). Then a fall set in, extending through six days, during which the prevalence and frequency of parasites in the blood was very uncertain.

(c) The *first relapse* was a rise through 3° in two days and similar fall—the parasites present all the time.

(d) Immediately another rise began, and death then occurred.

D.—Mule No. 18 received three syringefuls of heart's blood of Mule No. 12 obtained one hour after the death of that animal. No parasites could be detected in the blood at the time, nor were the parasites detected in No. 12, blood on the preceding day; they were the day before that. Normal temperature of this experimental mule was very low :—

(a) A rise of temperature commenced on the third day, *i.e.*, very short incubation.

(b) The rise was through 4.5° F., and lasted three days, to 102° . On the sixth day the parasites were very numerous; they remained present for three days, were then absent for three days, during which time the temperature sank to 99.5° .

(c) After this fluctuating temperature, indefinite presence of parasites, and absence of well-defined relapses, characterised the case, until I was compelled to cease my observations, on the 33rd day; just before this, the symptoms seemed about to assume some regularity.

E.—Mule No. 12 or XV. was inoculated subcutaneously with parasite-containing blood and water mixed.

(a) The principal rise of temperature occurred on the 4th day of incubation.

(b) The *invasion* rise and fall lasted to 11th day, then after three days,

(c) The *first relapse* occurred, which lasted 4 or 5 days, and was followed by—

(d) The *second fever-free period* of 3 or 4 days. Then,

(e) 7—9 days, second relapse followed by a short *rebound*. The relapse is divided into the well-marked parts by a fall on one occasion to 100.5° .

(f) After another abrupt rise (third relapse?) and fall.

(g) And a short parasite-free stage.

(h) The final relapse (with three rises) set in, and proved fatal on 44th day after inoculation.

Death was premature, having been brought about by entanglement of an old clot in the *cardiac orifice of the pulmonary artery*.

I find, on careful examination of the charts of these five cases of the disease, as recorded from the beginning, the following difficulties :—

(1) Where should the common point of departure and comparison of the tracings be taken? I decided to take it from the commencement of specific rise in temperature. Thus I found the period of incubation after subcutaneous injection to be 4 days, whereas after gastric injection, and subcutaneous injection of blood apparently free from parasites, it was 7 days.

(2) Is the second rise a relapse or a rebound? I think the former, since in cases of Mule No. 17 and of the pony the parasites had reappeared, and were numerous and very active in the blood during this second rise. Yet, for comparison with Dr. Carter's tracings for man, these ought to be called rebounds.

We must now compare these artificially-induced cases with some of the disease as acquired naturally. Of them I am not able to state absolutely the date of disease invasion, for they were generally sick some time before the attack was reported. In them we see that the temperature tracing has assumed the chronic character, and, with morning and evening records, gives the "*cat's tooth*"-like curve for each relapse. And for each relapse must be reckoned a period of 7 days.

(*To be continued.*)

Editorial.

THE CHEMICAL AND MICROBIAN THEORIES OF DISEASE.

THE great impetus given to the progress of Medicine by the researches of Pasteur and his disciples, which have demonstrated the very important part played by micro-organisms in the production of disease, forms one of the most notable events in the history of the latter half of the nineteenth century. The biologist has, in this branch of investigation, usurped the place formerly claimed by the chemist, and it cannot be denied that he has established a strong claim to. Pasteur, himself a chemist, has been chiefly instrumental in overthrowing the pretensions of chemists to solve for us the mysteries connected with contagious diseases and putrefactive processes, as well as those of fermentation, by showing that these depend upon the agency of microbes. The theories of Liebig, Berzelius, Mitscherlich, and others, who taught the doctrine of catalytic force, in which the contact of one substance with another could, it was asserted, produce all the phenomena observed in these processes, were upset, or at any rate relegated to a back shelf, though not without a struggle, and a passive determination to hold on to them. The chemists have neither universally nor unhesitatingly accepted the bacillar theory of the etiology of contagious maladies; indeed, some of them have been its most determined opponents. And the recent discovery of what are designated *Ptomaines* and *Leucomaines*, has been brought forward by them in support of the hostile position they have taken up, as it affords evidence, according to their view, that new matter can be formed in the body, which will give rise to morbid changes, without the aid or intervention of microbes. This new doctrine of the pathogeny of disease is now being closely scanned, and it is not improbable that, after all, it will be found that in the production of these poisonous alkaloids micro-organisms have some, if not the principal, share. It has long been suspected that the bacillus of Anthrax, for instance, produced its lethal effects not so much by its mere physical presence, as by its transforming the fluids with which it came in contact into a substance poisonous to the tissues, or by secreting something which destroyed their vitality.

However this may be, pathologists cannot afford to ignore any efforts that are made, whether by chemists, biologists, or physicists, to elucidate the etiology of disease; and the latest development of the chemical doctrine possesses interest and importance in this regard. Professor Gauthier lately read a paper on the subject of the Alkaloids of Animal Tissues, before the Paris Academy of Medicine, of which an excellent summary has been given by the French correspondent of the *British Medical Journal*, and we think our readers should be made acquainted with it. In the paper it is pointed out that, in the course of putrefaction in animal tissues, a certain number of poisonous alkaloids are called into existence. The alkaloids of putrefaction vary according to the character of the medium in which they develop, also according to the period that bacteridian fermentation begins. Hydropyridic compounds are almost always present; they are apparently the alkaline products of the most enduring bacteria, which live and suppress the others. In the excretions of healthy living animals there are substances of the character of ptomaines. The alkaloids of urine found by Liebricht and Pouchet ought to be ranked with alkaloids of putrefaction. There are similar ptomaines in saliva and snake-venom, which M. Gauthier names leucomaines, in order to distinguish them from the alkaloids that form in dead bodies, called ptomaines. In 1881, M. Gauthier published a memoir, in which he dwelt on the importance of the leucomaines in connection with the genesis of disease, when renal elimination, or that of the skin and intestinal mucous membrane, was insufficient. Later on, M. Gauthier studied the muscular juice of large animals, and extracted five new definite crystallised alkaloids acting with more or less energy on the nerve centres, causing sleep, fatigue, and in some instances vomiting and action of the bowels, but in a less degree than ptomaines. These substances are called into existence during life, just as are carbonic acid and urea. The transformations of the tissues of the higher order of animals are, in a large proportion, of the anaerobic order. M. Gauthier observes that this proposition may appear paradoxical, but he believes that he will demonstrate it experimentally and theoretically. Four-fifths of the products of animal combustion are positive aerobic formations, comparable to the oxidation of alcohol under the influence of *mycoderma vini* or *aceti*. The fifth part of the combustion of the animal economy takes place at the expense of the tissues, without oxygen playing any part in the process; or, in other words, that portion of the tissue lives, like the anaerobic or putrid ferments. Most of these toxic alkaloids are easily oxidised; they enter into combustion, and disappear or do so in part. In a normal condition, a very small proportion of muscular leucomaine is found in urine. But if the air that reaches the blood be diminished in quantity, or the proportion of hæmoglobin be diminished, as is the case in Chlorosis or Anæmia, or if substances be introduced into the blood which prevent hæmatosis, substances of the character of leucomaines or ptomaines accumulate in the blood. M. Gauthier further states that, with these toxic alkaloids, there exist nitrogenous substances, not alkaloids, which are still more poisonous. The septic poison of *Panum* contains hardly any alkaloid.

AN INFECTIOUS DISEASE IN HORSES.

BY DEPARTMENTAL VETERINARY SURGEON, DR. SCHMIDT, AACHEN.*

IN the months of February and March of this year (1885), a peculiar disease broke out in a stud of twelve horses, upon an isolated farm in the neighbourhood of Aachen, which was so puzzling in many respects, that it may not be out of place to publish the observations my colleague, Knur, and I made. Perhaps the disease has been noticed in other districts, and, maybe, some of our colleagues have succeeded in making its etiology clearer than we.

Between the 15th February and 6th April, eight horses were attacked with similar symptoms, and died. A table is given below, showing the number as they were successively attacked. They were well fed, but not too fat.

Without any premonitory symptoms, the animals were seized with a peculiar stiffness in the hind-quarters; they lay down at unusual times, but soon got up, only to go down again, and were then unable to rise. They could only raise the fore-quarters, and their greatest efforts, even when assisted behind, could bring them no further. They remained squatting like dogs. Their appetites were normal, and they enjoyed both fodder and drink. Their expression was lively, the ears moving to and fro, as usual. In a word, psychologically, there was nothing out of the common. The pulse and heart-beat were normal (36—40, full and soft). The internal and external temperature showed no unusual change. The first varied from 38°—38·5°C. in different animals. The fæces were voided in sufficient quantities, in balls; the urine was generally quite clear, sometimes yellowish-white, and free from albumen. The respirations numbered 10—12, without any unusual working of the ribs or flanks. Sensation in the hind-quarters was somewhat impaired, which was demonstrated by pricking with a needle. The mucous membranes were normal.

These phenomena remained unchanged for several hours, but never more than one and a-half days, after which the paralysis in the hind-quarters passed also to the fore, so that the patient lay flat upon one side or the other. From time to time violent movements with all four legs took place, during which the respiration was increased.

The internal temperature, even then, never exceeded 39°C; indeed, in two instances Mr. Knur observed the temperature sink to 37°C. only twelve hours before death. The urine remained unchanged in colour until death, but in larger quantities. Two mares were noticed to micturate in drops, involuntarily, showing that the sphincter vesicæ urinariæ was paralysed.

Death followed rapidly, its approach being signalled by increased respiration and pulse, great restlessness; partial sweats in some, anxious appearance in all, cases. The immediate cause appeared to be paralysis of the heart.

The appetite, until shortly before death, remained, and the animals endeavoured to eat the litter they were reposing on. The bowels also remained normal. No brain symptoms were observed, and the pupils remained unaltered.

The symptoms in a four-year-old stallion differed from the others, the first being those of Pneumonia. There was cough, very frequent breathing, abnormal vesicular murmurs, temperature 41·2°C. These symptoms were followed in a few hours by the paralysis already described.

The blood which was abstracted from the jugular vein of this and the other horses had its normal colour, and soon formed a solid clot, with little serum. Microscopic examination, by us and other specialists, of the blood and spleen revealed no parasites. Professor Lustig, however, informed us he found two species of bacteria, but stated he attached little importance to this, as

* Translated from the "Archiv f. Wissenschaftliche Thierheilkunde," by F. Raymond, F.R.C.V.S., A.V.D.

the blood had been sent to him in large quantities, and had not been examined until thirty-six hours after.

The horses were attacked and died as follows :—

Horse No. 1,	attacked on	15th February,	midday	..	died,	15th February,	evening.
„ „ 2,	„	15th „	afternoon	..	„	16th „	„
„ „ 3,	„	17th „	noon	..	„	19th „	noon.
„ „ 4,	„	19th „	„	..	„	21st „	„
„ „ 5,	„	18th March,	10 a.m.	..	„	19th March,	5 p.m.
„ „ 6,	„	18th „	„	..	„	20th „	morning.
„ „ 7,	„	3rd April,	morning	..	„	5th April	„
„ „ 8,	„	6th „	„	..	killed	8th „	„

This table shows that twice the outbreak paused for a few weeks : between Nos. 4 and 5, and 6 and 7.

After the four first cases had ended fatally, the food and the water were changed. On the 18th March, when Nos. 5 and 6 were attacked, the old stable was vacated and a wooden shanty, upon the farm, was occupied by three horses ; and two were placed in a cow-house. On the 31st March, a mare heavily in foal, which had been sent to a neighbouring farm, returned, and was located in the shanty. She was fed upon oats and hay, sent from the other farm, only, and was watered, like the others, from a well near the estate. On the 3rd April, she was already completely paralysed. Again, No. 8, purchased on the 7th March as substitute, was attacked on the 6th April, and destroyed on the 8th, completely paralysed. Upon the occurrence of the last two cases our original opinion, that the outbreak was due to so-called stable miasma or poisoning by food or water, was changed : for horse No. 7 stood in a provisional stable, well ventilated but not draughty, and was fed upon forage imported from a neighbouring estate ; No. 8 had stood for some time in the cow-house, and had been fed upon purchased forage. Nevertheless, the cause is to be found on the farm ; but where ? Of what does it consist ? Up to date, this puzzle has not been deciphered. It appeared certain that we were dealing with an infection or poisoning of some kind, and therefore every point which, in any possible way, could be connected with the disease received our greatest attention, but with no satisfactory result. The first item which attracted our notice was a water-trough, situated in the middle of the straw-yard. The water it contained was a thick, foul (?) fluid, and analysis here and in Cologne showed a great percentage of organic substances. One litre was found by Dr. Schridde to contain 2·072 grs. solids. These consisted of 1·298 grs. in organic salts, and 0·774 grs. organic substances. Of the last, there was, therefore, 15½ times more than should be found in good drinking water, according to Von Pettenkofer. The use of this water was discontinued, and other, from a well situated near the estate, substituted ; yet the disease continued its ravages. The oats were unobjectionable, the hay well harvested, and consisted of good grasses only, with clover and herbage of that description. It is true there were a few leaves of colchicum, but only in the proportion of 20 grs. to 9 lbs. of hay. Equisetum, which has been known to give rise to similar disorders, was not to be found. Although nothing was discoverable in this forage which could injure animals, it was also changed ; but without result. The removal of the horses, as above described, gave no satisfactory result. Further : to discover if the disease was communicable from one animal to another, inoculations were instituted upon sheep, a horse, and mice, with fresh blood taken from the sick and from the carcasses. The results were negative.

As noteworthy, we mention that between the 15th February and 18th March, a spiritual gentleman endeavoured to cast out any unclean devils which were present, by prayers, etc. Even this method of attack was powerless.

The mysteries of the malady were not solved by autopsies undertaken imme-

diately after death. The *post-mortem* of No. 8 (which would have died in a few hours, had it not been slaughtered) showed absolutely no organic changes ; the blood was also normal, and formed the usual clot at once. The flesh was quite healthy. Speaking generally, the following *post-mortem* observations were made :—The skin and muscles of the side upon which the animal died were dark red ; the other muscles normal. The diaphragm was smooth and glistening, the lungs mostly congested, but without other pathological change. Horse No. 5, which was first attacked with Pneumonia, had the tongue-like lobes of both lungs hepatized and the pleura pul. covered with a soft, fibrous coat. The heart was soft and atrophied, and strikingly pale ; the chambers contained a little coagulated blood. The endocardium was occasionally red ; in some instances the pericardium contained about a pint of red fluid. As regards the large glands of the abdomen, nothing was abnormal except the liver, which was friable and clay-coloured.

The stomach was only altered in No. 7. In this case the mucous membrane of the cardiac portion was reddish-brown, considerably tumefied, and in many places eroded. The centre of the erosions was intensely red, the edges irregular and raised. The contents of the stomach was bloody. Bots were not to be found, neither could Dr. Schridde detect any traces of poison. The small intestines of several animals showed numerous small red marks, about the size of a pea ; and also excoriations, of oval shape, and the size of a bean. The excoriations were dark red. Beyond this, nothing was to be noticed in the intestines or the glands. The kidneys and spleen were healthy in all the animals. In the brain and spinal cord nothing abnormal was discovered.

As to treatment, we found every agent employed, both internally and externally, useless. Violent and certain remedies refused to act. For instance, one horse received eserin subcutaneously, without effect ; and another took forty grains of aloes and sulphate of soda, followed by forty drops of croton oil, without laxation, and the bowels remained normal.

At last the old vacated stable was thoroughly disinfected, and in the beginning of May was occupied by newly-bought and healthy horses.

No fresh cases occurred amongst the horses, but in April a disease broke out in the cattle on the farm, which is rather prevalent in the district. It is characterised by paralysis of the pharyngeal muscles, which prevents the swallowing of food, water, and saliva. Three cows were attacked, one died, and two recovered when fed upon green forage. Musty hay was the supposed cause of the last outbreak.

A NEW DISEASE OF HORSES.

AN interesting contribution to the knowledge of the peculiar disease of man, Beri-beri, has recently been made by Dr. Lacerda, director of the physiological laboratory in Rio de Janeiro. During a visit to the island of Marajó he investigated with a good deal of care, and with the help of Senor Gustavo Rumbelsperger, an epizooty prevalent there, affecting chiefly horses and pigs, and known by the names "hip pestilence," "quebrabunda," "straddling disease," and came to the conclusion that this was identical with Beri-beri. The first symptom is debility, the animal losing its natural vivacity ; it then walks with an uneven gait, its nostrils dilate, and its breath becomes short, and the penis is protruded from the prepuce ; it then becomes restless and unwilling to remain in one position, constantly varying the point of support for the hind legs, keeping one of them always at rest. Shortly the characteristic symptom of staggering in the hind legs appears, the horse seeming to have broken his haunches and being unable to control the

movements of his hind legs ; the abdomen is retracted, the stools voided with difficulty as hard lumps, sometimes covered with mucus ; there is also dysuria. Usually there is neither anorexia nor great thirst, and only in rare instances is there any fever. Sometimes paralysis and dropsies appear ; ulceration, emaciation, and atrophy are also observed. The disease proves fatal occasionally in a few days, but some horses linger for weeks or months. Twenty-two necropsies were made, the blood being dark and viscous, and the viscera dark, swollen, and softened with ecchymoses in the bladder and omentum. The medulla presented sclerosis variously diffused, also a number of cells like the generative organs of ascomycetes and some mycelium. The water of Lake Arary in the island was found to contain a polymorphous microphyte belonging to the group Ascomycetes. This in its original condition, as well as when passed through several cultivations, produced in rabbits, pigs, birds, and monkeys inoculated with it symptoms closely resembling those of the "hip pestilence." The *post-mortem* appearances and cultivations of the blood in both cases were so similar, that Dr. Lacerda was led to believe that the "hip pestilence" is due to drinking the water of the lake. He, moreover, concludes from the symptoms and pathological appearances of Beri-beri that it is also identical with the "hip pestilence" of Marajó.

AIR AND ITS RELATIONS TO HEALTH AND DISEASE.

BY FRED SMITH, M.R.C.V.S., ARMY VETERINARY SURGEON.

(Continued from page 112.)

More examples might be quoted ; it is almost unnecessary to adduce the present low mortality amongst Army horses, as the facts are well known. Their healthy state is entirely due to the amount of pure air allowed them, for in no other circumstance of life do they differ from their predecessors of sixty years ago.

All we have said may be formulated in the precise language of Parkes : "Disease and health are in the direct proportion of foul and pure air."

We have thus endeavoured to prove by established facts the value of pure air, and the mortality produced by impure. It only remains now to deal with the different substances found in impure air, which contribute to the production of disease.

The Contagia.—By this is meant those particles of morbid matter constantly present in the air, according to some views, or occasionally present, according to others, which represent the poisons of specific diseases.

It is generally accepted that these poisons are particulate. With regard to some affections, these particles have actually been seen and isolated, such, for instance, as the poisons of Anthrax, Tuberculosis, and Vaccina. With other diseases, although the evidence of particulate poison is strong, yet the fact of their invariable presence is not so well established ; such is the case with Glanders, Pleuro-Pneumonia, Eczema-Epizootica, Cattle Plague, and Influenza. These particulate bodies are known generally as Bacteria, Bacilli, Micrococci ; or briefly, Micro-organisms ; that they are the actual disease-producers, and not the products of disease, has been proved in the case of Anthrax, Tuberculosis, and Vaccina, by filtering the liquid products of these diseases through a filter sufficiently fine to retain the solid particles, when inoculations made with the filtrate have proved innocuous.

It must be regarded as undoubted that the air is a means of conveying these Micro-organisms from one animal to another (see Kuchinmeister's experiment in producing Variola in a sheep); that it possesses this power in a more marked degree with some than with others is well known ; for instance,

the poison of Cattle Plague spreads with wonderful rapidity, and a vast tract of country is soon infected by it. The poisons of Anthrax and of Glanders are confined within certain limits ; the latter more than the former ; both of these diseases may devastate one stable, and leave another, quite close, untouched. We have no idea of the rules which govern the atmospheric diffusion of specific poisons. It is believed that the contagia of Eczema-Epizootica may be conveyed from 50 to 300 feet ; whilst Influenza and Cattle Plague may be carried considerable distances. Once the contagia has left the body and escapes into the air, destruction is prevented by an albuminous coating, or by epithelial or pus cells, which may cover and protect it ; in this condition it is carried about ready to infect, if deposited on suitable soil.

The length of time which the poisons of specific diseases retain their power to infect after they undergo the process of drying is not well ascertained but it is probable for some considerable time. Anthrax poison will keep for years ; Cattle Plague the same ; Vaccina will probably only retain its vitality for a short time ; Glanders is very persistent. Extreme heat and cold have not much effect on these poisons. Anthrax contagium has to be exposed to boiling-point for two hours to kill the rods, or to steam at 221° F. to destroy the spores. Freezing does not destroy the virus. On the other hand, a temperature of 112° F. destroys the Variola poison, and freezing has the same effect. A humid state of the atmosphere favours the infectiousness of some viruses, notably those of Anthrax and Cattle Plague. Air rendered impure by the process of respiration and transpiration is, from the fact of its being the most general, the most important impurity which concerns us. Until the importance of human and veterinary hygiene is more generally understood and appreciated, so long will families be crowded in small and ill-ventilated rooms, and horses and cattle condemned to low and stuffy stables, which never receive the light or breath of heaven.

We have before seen the enormous amount of impurities conveyed into the air by horses and cattle in health, and have pointed out how that, owing to the fact that animals have to live, sleep, eat, drink, defæcate, and urinate, all in one place, and under one roof, the organic emanations are particularly foul.

To make matters worse, we have a strong and popular prejudice against fresh air—a prejudice not perhaps so marked as in the days when every crevice, including the key-hole, was carefully stuffed ; but still sufficiently strong to form a most formidable barrier to the progress of veterinary hygiene amongst the civil population. On entering stables of this description, a penetrating odour, unmistakably of organic matter, is met with ; a hot, damp, muggy feeling which is insupportable, accompanied by pungent ammoniacal vapours, which irritate the conjunctiva, all contributing to form the “poisoned atmosphere of the stable,” which Professor Coleman believed to be the cause of Glanders. It will be remembered that Coleman held the view that Glanders could be produced in a previously healthy horse by exposing him to an atmosphere rendered impure by effluvia from his urine, fæces, and perspiration.

It was these views which laid the foundation of veterinary hygiene, which freed our Army from zymotic diseases, which saved the country enormous sums of money, which increased the efficiency of our Forces ; it was the adoption of these views which rendered the French cavalry effective, and reduced their mortality. But in spite of what we can show, as the result of a better knowledge of the laws of hygiene, yet, in the civil world, Glanders-farcy is very common, Influenza and Strangles very fatal, Pneumonia a scourge, blood diseases only too frequent.

It must be conceded that in the present state of our laws it is impossible to exercise the same supervision over private property as it is over public ;

but if only the loss of life amongst animals in this country, due directly or indirectly to confinement in an impure atmosphere, were obtainable, the results would be sufficiently appalling to call for immediate legislation.

Men should not, either from ignorance or indifference, be allowed to shut their animals up in places not big enough for a human being to live in, or make them breathe impure air, either through their personal prejudice or carelessness. It is no argument that, because it is his own property, a man is at liberty to do what he likes with it! He is not! Why should a horse-owner be allowed to run the risk of producing disease, not only amongst his own horses, but amongst those of others he may come in contact with? A man is fined for leading a glandered horse along the public road, and if legislation can be provided for this, it could be provided to insist on the proper ventilation of stables and cow-houses, and owners made by law to provide their animals with that due ration of air which science dictates they require; these duties should be performed by a veterinary sanitary police. No person should be allowed to breed disease amongst his own animals, or risk the property of others and the lives of human beings, any more than he is allowed to have a smoky chimney which proves a nuisance to his neighbour.

The British nation is a singular composition of incompatibilities, and we cause the foreigner to become intensely puzzled in attempting to decipher our national character. Now we have a society which firmly believes it is doing good by preventing experiments on living animals, whilst its only effect is to practically strangle medical science; we have another which takes upon itself the noble work of preventing cruelty to animals. There is no member of our profession who has not a feeling of admiration for the humane motives which promoted the organisation of this society, and for the good work they do; but I believe we are pretty generally agreed that they have not always adopted the most judicious course in their anxiety to do good, and have occasionally carried their views too far. I think it must be conceded that it is more important that animals should have pure air and ample cubic space than that they should remain in possession of the last inch or two of their tails, and *I feel convinced that the Society would have a wide field for work if they turned their energies, influence, and money towards providing animals with pure air, pure dwellings, ample cubic space, proper drainage, and sufficient food, and not allow our poor dumb patients to be cruelly deprived, either from ignorance or carelessness, of the essentials of health and life.* The effects on animals kept in an impure atmosphere are—they never look well, they are hide bound, require more food for the amount of work expected from them, they work indifferently, owing to enervation, their legs swell, colds, coughs, Pneumonia, Ophthalmia, and Diabetes, and Glanders-farcy, common; if an epizooty occurs it is much more fatal amongst these than amongst other horses placed under better hygienic conditions. Animals living in stables badly ventilated would not last so long as they do, but for the fact that they spend many hours daily in the open air at their work, and it is this and nothing else that spares them.

Organic matter derived from the bodies of animals in overcrowded and ill-ventilated places may, as the result of its decomposition, produce diseases, and these particles will be carried about by the air. Grogner has described a stable-fever of animals in France, analogous to hospital and prison fever in man;* and in the Alfort School, as before stated, wounds quickly become putrid, and caused death, owing to the overcrowding and bad ventilation. Constitutional Ophthalmia and other diseases of the eye have been attributed to the same cause.

In 1792, during the siege of Mayence, Dysentery of a very aggravated

* "Sanitary Science and Police." G. Fleming, LL.D., F.R.C.V.S.

character broke out amongst the horses and cattle closely confined in the casemates.*

The effects of gaseous inorganic substances in the air possess a very important influence on animal and vegetable life.

An excess of CO_2 produces serious changes in the blood, reducing the circulation and causing great dyspnoea. In slow poisoning the animal becomes sleepy, lethargic, the heart's action fails, and anæsthesia is produced. The exact amount of carbonic acid which will destroy life is not quite known, so much depends on its source. Breathing an atmosphere containing an excess of oxygen and carbonic acid (produced artificially), the results are different; Reynal and Reiset found that under these conditions 17·23 per cent. of CO_2 might be present, and the animals suffer no injury. In these cases the excess of oxygen protected them.

Carbonic oxide induces a reduced arterial tension and paralysis of the heart. It is rapidly fatal to animals if it exists in a larger proportion than 1 per cent.

Ammoniacal gases are largely formed in stables as the result of the decomposition of urea. Where free ventilation is denied the ammonia remains very persistent, and is generally believed to have a destructive influence on the eyes.

Sulphuretted hydrogen results from the decomposition of animal and vegetable matter. The odour of this gas is so penetrating that one cubic inch of it will, according to A. Smith, scent some hundreds of cubic feet of air. Four volumes per 1,000 of this gas will kill a horse; it induces diarrhoea, purging, and extreme prostration. This gas blackens the paint of those buildings where it may exist in any appreciable quantity.

Sulphur dioxide is given off from copper-smelting works. The fumes have the remarkable effect of producing ossific deposits on the knees and hocks, falling off of the hair, and general emaciation of both horses and cattle; the affection is termed "copper smoke" disease. This so-called copper smoke consists of about 68 per cent. arsenious acid, 28 per cent. sulphuric acid, and small quantities of iron, copper, and nickel. Although the disease is produced by inhalation of this vapour, yet it may also be assisted by the quantity of these salts deposited on the ground, and taken into the stomach with the herbage.

The effects on vegetation of acid gases derived from manufactories, is to shrivel up and discolour the leaves and stems of trees and farm crops. Mr. Rothwell says that old grass meadows and pasture lands receive much damage in the winter from this cause, and further adds, that on fields much exposed to the vapours, handfuls of dead grass can be pulled up in the spring, smelling strongly of the vapour.† Dr. Smith has not verified this last condition, but he notes the damage done to the flowering heads of wheat by the action of acid gases; the crops may be, to all appearance, full and ripe, when scarcely a trace of grain is found. In a report published by the French and Belgian Governments on the subject of the damage done to plants by acid gases, much interesting information is to be obtained. It is shown that the amount of damage done is in relation to the hygrometric, barometric, and thermometric conditions of the air and atmospheric currents. It is not sufficient that the acid vapours pass over the plants, but they must actually touch them; the effect of this is the production of a stain on the leaf, and ultimate perforation and destruction of it. A curious case is recorded of three vigorous vines growing against some stables, which showed a staining and shrivelling of some of their leaves; the damage was undoubtedly due to acid, but the cause was far from apparent. It was ultimately found that below the damaged leaves there was an opening from

* "Sanitary Science and Police."

† "Air and Rain." Dr. A. Smith.

which the air of the stables escaped, and which from want of cleanliness contained a deal of ammoniacal vapour, and it was this and the sulphuretted hydrogen which had stained and destroyed the leaves.

Regarding organic emanations from drains, we have very little evidence to show their ill effects on animals. Still, there is one most interesting case recorded when this condition produced a serious outbreak of disease.

At Cabul, in 1880, twenty-eight cases of Diarrhœa occurred amongst the horses of the 9th Lancers, nine of which proved fatal. The disease was principally confined to two troops, which were then moved out of the lines. Mr. Woods, the veterinary surgeon of the regiment, who records the outbreak, states that, after removing the affected troops, he had the flooring of the sheds dug up, and he found running through them a ditch three or four feet deep, filled with manure and refuse, and covered by only nine inches of earth. The effluvia from this, and from two or three pits several feet in depth, which were also found, was very bad. The whole place was cleaned out, fresh earth put down, and the epizooty ceased.* There is a practice which prevails amongst regiments of native cavalry in India, of burying vessels under ground in the stalls for the reception of urine, and these vessels not being removed for years; another common practice is burying the manure in or near the lines. The emanation from these places is pestiferous. Mr. Woods tells us, in his account of the above epizooty, that the 3rd Bengal Cavalry, which were lying next to the 9th Lancers, had six cases of Diarrhœa, of which three were fatal. The ground on which this regiment were encamped had previously been occupied by the 5th Punjaub Cavalry. This ground had become thoroughly soiled, and in many places consisted of nothing else but excrement, to the depth of a few inches.

I am afraid my paper has proved, what everything does which contains figures, rather dry; but I may be excused in bringing the subject before the profession, not only on account of its importance, but because it contains the first record of a chemical analysis of stable air made by a member of its body.

I trust at some future period to bring forward other subjects connected with veterinary hygiene, a branch of our science which has been much neglected.

SIR FREDERICK FITZWYGRAM VETERINARY PRIZES.

Sir F. Fitzwygram, Bart., offers these prizes on the same conditions as last year. Particulars may be obtained from the Secretary R.C.V.S., Red Lion Square.

Reviews.

PATHOLOGICAL MYCOLOGY. By G. S. WOODHEAD, M.D., and A. W. HARE, M.B. (Edinburgh: Young J. Pentland. 1885.)

The study of Bacteriology, as the subject is sometimes termed, is one of great interest and of increasing importance, more especially to the pathologist, as the recent advances in pathological mycology have thrown a flood of light on morbid processes hitherto extremely obscure. Drs. Woodhead and Hare have, in the excellent work now before us, certainly done a great service to students and busy practitioners of medicine

* For a detailed account of this interesting outbreak, see *VETERINARY JOURNAL*, Vol. xv., No. 88.

—whether human or veterinary—in laying out before them, in clear and concise terms, the methods to be pursued in investigating the micro-organisms found in disease, as well as those present in the atmosphere and elsewhere, and especially as to their examination and artificial cultivation. The object of the work is, as stated in the preface, twofold; first, to supply to the worker in the field of Scientific Medicine, a handy guide, to which reference may be made for instruction and details which can otherwise be obtained only from scattered papers and treatises in various languages; second, to show how extremely simple are most of the methods of research, while they encourage the young pathologist to work in a domain which daily, as it yields new facts to the patient explorer, discloses greater potentialities.

The work consists of an introductory chapter on the general subject of micro-organisms, which is particularly interesting, especially in regard to their relations to the tissues, and their special and distinctive individual peculiarities. Another chapter is devoted to methods of examination, in which the chemical and staining reagents are specified, and the hardening of tissues, method of illumination, photography, and other matters are fully described; while other chapters treat of solid and fluid cultivation, media, and the most approved methods of cultivation; and a chapter is given to separation of micro-organisms from the tissues—dead or living. There are two appendices—one on particular organisms, and another on the literature of the subject, which is somewhat fully dealt with. The illustrations are sixty in number, and are about the best we have ever seen in a book of this kind, some of them being coloured in a very telling manner. To those who are about to commence the study of micro-organisms, or who are already engaged in it, this compact little book of 174 pages can be heartily recommended, as it will serve as an admirable guide even to those who have made considerable progress in the practical part of the subject.

MAD DOGS AND HYDROPHOBIA. By H. DALZIEL. (Dundee: J. P. Matthew and Co. 1886.)

In a booklet of eighty-two pages, price one shilling, Mr. Dalziel, who is favourably known as a popular writer on dogs and horses, has dealt with the subject of Rabies in a manner sufficiently brief and explicit to give the general public an idea of this always terrible and terrifying disorder. A brief history is followed by remarks on popular fallacies, mistaken evidences and tests of Rabies, prophylactics, supposed preservative and preventive measures and cures, the symptoms and really preservative measures, and the law on the subject. Mr. Dalziel has gone to the best writers on Rabies for his information, and supplemented what they have to say by his own experience. Though to the veterinary surgeon it contains nothing new, yet to dog-keepers and the public in general, who may desire to make themselves acquainted with the leading facts in connection with this veritable dog-plague, nothing could be handier, cheaper, and at the same time more reliable than this little book.

HORSE AND MAN: THEIR MUTUAL DEPENDENCE AND DUTIES. By the Rev. J. G. WOOD. (London: Longmans, Green and Co. 1885.)

The reverend author, who has established a reputation for himself as a writer on natural history, has been moved to produce a book on the horse, with the laudable object of obtaining for that animal more considerate treatment from those who have to do with its management. Of the seventeen chapters which make up the contents of the volume, eleven are dedicated to shoeing, two to the bearing-rein, one to blinkers, one to mane-hogging, "docking," and clipping, one to stable management, and the last to anecdotes. The writer, in the preface, insists that it is not a "horsey" book, because he is not a "horsey" man; and although we abhor the vulgar designation and many of the weaknesses or specific peculiarities of the so-called "horsey" individual, we sincerely wish Mr. Wood had possessed sufficient horse knowledge to have preserved him from the more glaring and extraordinary errors which are to be noted in the chapters on the anatomy and physiology of the horse's foot and on shoeing. He asserts that he simply states facts, offers evidence of these facts, adduces proofs of that evidence, and states how and where these proofs can be verified. But with all due deference to him he makes statements which are not facts, gives no evidence or proofs of them, and does not mention how or where the proofs are to be verified.

At page 48, in describing the hoof, he says that the "linea alba," or white line, which marks the junction of the sole and wall, is analogous to the "quick" of the human nail, and is exceedingly sensitive. "In the untouched hoof this line, which is as vulnerable as the heel of Achilles, is thoroughly protected by the thick and strong horny layers of the sole; but if that protection be removed, or even weakened, the pressure of the horse's weight against a stone, or similar object, will cause such intolerable agony that the animal will drop as if shot when he treads upon it." And elsewhere this white line is repeatedly spoken of as identical with the "quick" of the nail in man, and equally sensitive. But this is not so; as our readers know that the so-termed "white line" is the rather soft insensitive horn uniting sole and wall, and which is always exposed to wear, along with the sole and wall, without any inconvenience to the horse. And among other strange errors, may be mentioned those in connection with the expansion of the hoof, which amateurs are never tired of descanting upon, but which in reality does not exist as they imagine it. Speaking of the advantages of this expansive property, he alludes to one of them in the following passage:—"When an ordinary horse—say, in hunting—is traversing stiff and clayey ground, its progress is greatly hindered by the soil which adheres to the hoofs and by the depth to which the foot sinks in the ground. Sometimes, when the horse has taken a leap, the fore-hoofs sink so deeply that the animal cannot instantly extricate them. The forward impetus cannot be checked, and the result is that the leg is broken at the pastern, and the horse has to be killed. The rider may probably be killed too; but we are now dealing with the horse, and not with its

rider. But to an unshod horse, the result of a similar leap would be very different. As it comes to the ground the hoof expands, and consequently gives a wider bearing ; so that the foot does not sink so far, and necessarily makes a larger hole. Then, as the hoof contracts as soon as the weight is taken off, it comes easily out of the hole ; and so there is but little risk of snapping the pastern."

Persons who know anything of the functions of the horse's foot will stare with amazement at these statements, which are not founded on fact—such expansion does not exist.

The injury caused to the foot by bad shoeing redeems blunders such as those we have alluded to, though the lack of a practical knowledge of the subject is abundantly manifest. Shoeing, no matter how practised, is considered an unmitigated evil ; but this is another mistake. When properly carried out, horses will continue to do far more work, and with greater ease and safety to themselves and their masters, when shod than if unshod. We know of scores, or even hundreds, of horses—many of them over twelve years of age, some verging on twenty, and a few over that period—which have been shod continuously since they were three years old, and there is nothing the matter with their hoofs. Shoeing for ninety-nine per cent. of horses in a moist climate with hard roads, is an indispensable necessity. This is a fact which experience has amply demonstrated. Good shoeing does not injure horses, while it makes them more useful to man. This is the sum and substance of the whole question. With the opinions expressed on the use of the blinkers and bearing-rein, docking, and some of the evils of stable management, we quite agree, and hope their condemnation by the author will assist in bringing about reforms.

The book contains a number of woodcuts to illustrate the descriptions. Mr. Wood appears to have considered the hoof only, in studying the expansion of the foot, as did Bracy Clark, and he has consequently fallen into the same kind of errors ; this is evident from the illustrations he gives. The figure on page 46, intended to represent a section of the hoof through the coffin bone, must have been drawn from imagination ; no such arrangement is seen on a real section.

One sensible paragraph we find in the introduction, which makes amends for much that cannot receive this designation : "Let the medical and surgical treatment of the horse be left to those who have been trained in an acknowledged Veterinary College, and who can produce the diploma which testifies to their scientific and practical capability. Nowhere do I presume to instruct the veterinary surgeon. On the contrary, I urge, throughout the work, that no one ought to be allowed to administer the mildest of drugs, or to perform the slightest of operations, unless he be legally qualified to do so."

OUR HORSES : OR THE BEST MUSCLES CONTROLLED BY THE BEST BRAINS.

By A. SAUNDERS. (London : Sampson Low, Marston, Searle, and Rivington. 1886.)

Of the many popular books on horses and horse management, this by Mr. Saunders is certainly among the best of them. Whether the writer

treats of stabling, food, water, exercise, shoeing, or training, we fancy the great majority of horsemen will agree with him in nearly all he lays down for guidance in these matters, which he treats fully and freely. In some minor details, in other parts, there might be, perhaps, a divergence of opinion, as in the treatment of diseases, or purchasing a horse ; but this is of little moment in judging of the value of the book as a whole, in which common-sense forms a prominent feature. Horse-owners should be much indebted to the author for the valuable information he gives them in an intelligible and intelligent form ; and horses would be as grateful to him, if they could only know how kindly disposed he is towards them in his instructions for their careful management and education. The anecdotes related in illustration of some of the points dealt with are good and well told, and convey a moral.

Proceedings of Veterinary Medical Societies, &c.

ROYAL COLLEGE OF VETERINARY SURGEONS.

QUARTERLY MEETING OF COUNCIL, HELD JANUARY 20TH, 1886.

J. Roalfe Cox, Esq., in the chair.

Members present.—Professors Axe and Robertson ; Messrs. Carter, Cartwright, J. Roalfe Cox, Dray, Dr. Fleming, Messrs. Greaves, Harpley, Mulvey, Perrins, Simpson (of Windsor), Simpson (of Maidenhead), Whittle, and the Secretary.

The SECRETARY read the notice convening the meeting.

It was agreed that Professor Walley's notice of motion should stand over to the next quarterly meeting.

The minutes of the previous meeting were taken as read.

Letters had been received from Professors McCall and Walley, Messrs. Woods, Wragg, and Taylor regretting their inability to attend the meeting.

The SECRETARY said that the following presentations had been made to the Library of the College :—"A Treatise on Hæmorrhoids, etc.," by Dr. S. Gamgee ; "A Journal of Medicine and Dosimetric Therapeutics," by Dr. Phipson ; "A Calendar of the Royal College of Surgeons of England."

Mr. DRAY moved, and Mr. WHITTLE seconded, a vote of thanks to the gentlemen who had made presentations to the Library of the College ; which was agreed to.

The SECRETARY stated that he had received a letter from Mr. Charles Hall, of Burton-on-Trent, applying for the usual diploma in virtue of his holding the Highland Society's Certificate ; he had paid the requisite fee, and his certificate was certified by Professor Walley in the usual way ; he presumed the Council would grant the diploma.

This was agreed to.

Dr. FLEMING proposed that Dr. Duncan, Professor of the Ontario Veterinary College, and M. Paul Cagny, perpetual Secretary of the Veterinary Society in Paris, be elected Honorary Associates of the Royal College of Veterinary Surgeons.

Mr. WHITTLE seconded the proposal, which was agreed to.

The SECRETARY said that two newspapers had been sent to him. One, the *Colchester Gazette*, contained a report of a case in which a member of the College had been sent to prison for drunkenness and theft, and the other was a paper containing a local law case with regard to slander at Nottingham.

He also called attention to two cases of prosecution by the College solicitor. The first case was that of Mr. H. E. Whisken, who had illegally used the letters M.R.C.V.S. after his name; he had been fined £5, and had undertaken not to repeat the offence. The second case was against Mr. Pettifer, but it had been dismissed under a certain section of 12 Victoria, Chap. 43, because there was no proof that it had been issued within six months, Mr. Pettifer undertaking not to repeat the offence.

The SECRETARY read letters from Honorary Associates thanking the Council for the honour of their election.

A letter was then read from Mr. Beddard, Secretary of the Midland Counties Veterinary Association, *re* Clause 9 of the Supplemental Charter.

The SECRETARY said that he had received a communication from Mr. Slattery stating that he had lost his diploma.

The Secretary was directed to write to Mr. Slattery, telling him that he must make an affidavit with regard to his having lost his diploma, in the absence of actual proof.

The SECRETARY said he had received a complaint from Messrs. William Litt, of Shrewsbury, against Mr. John Woodfin, who called himself a horse and cattle doctor and canine surgeon.

The Secretary was directed to send the usual notice to Mr. Woodfin, requesting him not to practise under those titles, and to inform the Council in course of time whether the request had been complied with.

The SECRETARY said that it had come to his knowledge that a Mr. Donald MacIntyre was using the letters M.R.C.V.S. contrary to the Veterinary Surgeons Act, 1881.

The Secretary was ordered to send a letter of caution to Mr. Donald MacIntyre.

Counsel's opinion with reference to Clause 9.

The SECRETARY then read a copy of the letter which had been sent to Mr. C. E. H. Chadwyck Healey asking his opinion with regard to Clause 9. The reply which had been received from counsel was as follows:—

"1. Who are eligible to serve on the Council for 1886 and afterwards? In my opinion no one will be eligible to be a member of the Council after 23rd August, 1886 (that is, after the period fixed by the Charter of 1876 has elapsed), unless he is a Fellow of the College or one of the members of Council at the date of the granting of the Charter of 1876. The question may arise as to the date to which the word 'present' in Clause 9 of the Charter of 1876 is referable. It may be said that 'present members of the Council' means 'members of the Council in the year 1876,' or 'members of the Council of the end of ten years from 1876.' The grammatical meaning, however, seems to me to be 'members of the Council in 1876,' and to apply to such members whether they have since ceased to be members of the Council or not.

"2. Whether Clause 9 of the Charter of 1876 can be rescinded except by another Charter or Act of Parliament? In my opinion Clause 9 of the Charter of 1876 cannot be rescinded except by another Charter or by Act of Parliament. It is no doubt true that a new Charter cannot be forced upon an already existing Corporation. On the other hand, if the new Charter be once accepted by the Corporation it becomes binding upon it, and cannot be rejected in whole or in part, see *City of London v. Vanneker*, Lord Raymond, page 149, and *Rex v. Amery*, Law Reports 575, page 589. In the present case it is clear that the Charter of 1876 has been fully accepted by the College, and I should not be at all surprised to find that the conditions of the Charter were in fact based upon an express petition of the College itself. Whether this be so or not, it seems to me to be impossible for the College to say that, while accepting the rest of the Charter and having acted upon it,

it will reject Clause 9.—C. E. H. CHADWYCK HEALEY, Lincoln's Inn, 21st October, 1885."

Mr. H. L. SIMPSON thought that a copy of counsel's opinion ought to be sent to the secretaries of the different associations throughout the kingdom, and to those gentlemen who might write and ask for it.

Mr. JAMES SIMPSON said that Mr. Greaves could furnish the Secretary with the names of the secretaries of the associations in the North, and he (Mr. Simpson) would do the same for the South.

Mr. GREAVES proposed, and Mr. WHITTLE seconded, "That a copy of counsel's opinion be presented to each member of the Council, and be sent to the president and secretary of each of the associations."

Mr. MULVEY asked whether the opinion given by counsel settled the question altogether, or whether it was to be remitted for further consideration to the committee which had been appointed? He should like to know if any further action should be taken towards rescinding that Clause in the way of obtaining a new Charter.

Professor ROBERTSON thought that the counsel's opinion simply settled the legality of the matter. The question was whether the committee appointed by the Council recommended that a fresh Charter should be obtained to abrogate the Clause. He did not think that the committee had given any opinion at all upon that point. He said he saw no use in sending the opinion to the associations. The question was still unsettled with regard to the opinion of the Royal College of Veterinary Surgeons.

Mr. MULVEY said that the matter had stood over for counsel's reply. He had understood that the committee was to meet again, and would then make further recommendations to the Council. He would move that the question be referred to the Committee appointed by the Council.

Mr. PERRINS seconded the proposal.

Mr. GREAVES withdrew his motion, and Mr. Mulvey's motion was agreed to.

It was resolved that a meeting of the committee should be called before the next quarterly meeting of the Council.

Report of the Finance Committee.

The SECRETARY read the report.

Mr. DRAY moved that the report be received and adopted, and cheques drawn for liabilities.

Mr. PERRINS seconded the motion, which was agreed to.

Report of the House and Building Committee.

The SECRETARY read the report of the progress of the building and the work done by the committee.

The PRESIDENT said that an adjourned meeting of the committee had been held that day, but there was nothing further to report upon.

Mr. DRAY said that there was every probability of the building being handed over to the Council by the latter end of March, in time for the quarterly meeting which would be held in April. They were all very much indebted to the President, who had given so much of his valuable time and paid so much attention to the furtherance of the new building and its furnishing, etc.

Mr. PERRINS asked whether the back entrance had been entirely done away with.

The PRESIDENT said it had been bricked up, but the surveyors had assured them that all their rights had been preserved.

Mr. PERRINS asked whether the fireplace in the board-room was a permanent one. It had struck him that it was a very small one, and rather out of proportion considering the size of the room.

Mr. H. SIMPSON said he had been very much struck with the warmth of the room and the dryness of the walls.

The PRESIDENT said they had been obliged to go economically to work with reference to the building, and they had rather hesitated to go to an extra expense of ten pounds or fifteen pounds for a larger fire-place. He was of opinion that the existing one would meet all requirements.

Professor AXE asked if the back door had been bricked up, what technically constituted the right of way?

Mr. WHITTLE said that a coal-shoot had been left there which gave a right of entrance.

Professor AXE moved that Mr. Thatcher, the solicitor to the College, be instructed to satisfy himself that their rights with regard to the back entrance had been preserved.

Mr. PERRINS seconded the motion, which was carried unanimously.

Mr. DRAY called attention to the fact that all the money which had been subscribed for the new building was exhausted and they had therefore been compelled to fall back upon the College funds. He hoped when they made another appeal that it would be liberally responded to.

Dr. FLEMING said that several gentlemen had promised donations amongst whom was Professor Simonds. He thought that the conditions under which that gentleman had promised his donation had been fulfilled.

Mr. PERRINS moved that the Report of the House and Building Committee be adopted.

Mr. MULVEY seconded the resolution, which was agreed to.

Report of the Court of Examiners.

The SECRETARY read the Report of the Examinations in England, Edinburgh, and Glasgow, and said the Examiners had no special remarks to make with regard to these.

Report of the Fellowship Examination Committee.

The next Fellowship Examination had been fixed to take place on the 24th February.

The SECRETARY read a list of members who had passed the last examination.

Mr. GREAVES asked how many gentlemen had sent in their names for the next examination?

The SECRETARY said a full number, and he was in communication with five or six others.

Dr. FLEMING said he had been astonished at the manner in which the senior members of the profession had passed their examination in the scientific portion of this examination.

The PRESIDENT said that another significant fact with regard to the Fellowship Examination was that of a gentleman who had unfortunately been rejected, and who, having presented himself twelve months afterwards, thanked the examiners for having rejected him, as he passed an excellent examination, and became a very creditable Fellow of the College.

Obituary.

The SECRETARY read the obituary notices showing a long list of deaths.

Mr. GREAVES said it had come to his knowledge that Mr. Thompson, jun., of Aspatria, had recently died.

Dr. FLEMING also called the attention of the Council to the death of M. Henri Bouley. At the time of his death he was President of the Academy of Sciences, one of the highest positions to which a man of science could

attain. He thought that the Council would only be doing itself justice by sending a letter of condolence to the family.

Mr. H. L. SIMPSON seconded the proposal, which was agreed to.

Election of Auditors.

The PRESIDENT said it was necessary that two auditors should be elected.

Mr. DRAY said he had much pleasure in proposing that the present auditors, Mr. Broad and Mr. Woodger, be re-elected. These gentlemen, as honorary accountants, had done their work very efficiently for a number of years.

Mr. WHITTLE seconded the motion, which was carried.

Mr. PERRINS asked if any special time was fixed for sending out voting papers to Australia, as he had a friend there who was desirous of voting.

The SECRETARY said that the date was fixed by the charter and bye-laws.

Dr. FLEMING asked whether the Council intended to take any steps with regard to the case of Mr. Thomas Neave, who had been convicted of felony?

The SECRETARY read the report of the case, which appeared in the *Colchester Gazette*.

Mr. H. L. SIMPSON moved that the matter be referred to the Parliamentary Committee.

Dr. FLEMING seconded the motion, which was carried.

SPECIAL MEETING.

The PRESIDENT said that as Professor Walley was not present, his motions would have again to stand over.

Professor AXE said he had been induced to bring his motion before the Council on account of certain discrepancies which appeared, firstly, in the period of scholastic education required by colonial schools and by the English and Scotch schools; secondly, on account of the inefficiency, or rather the discrepancy, in connection with the curricula of the colonial, English, and Scotch schools; and thirdly, on account of the fact that in some of the colonial schools a preliminary examination was not required of intended students, and that in other instances the preliminary education was probably of a very inferior order. At the present time Bye-law 47 provided [Bye-law read]. His motion referred to the latter part of the Bye-law: "A student holding a foreign or colonial diploma from any veterinary examining body recognised by the Council shall be exempt from attendance on the course of lectures for the first two years, and from the examinations at the end of those years respectively." The Council would see that under that clause a student, upon presenting a diploma from any colonial college—whatever might be the system adopted in regard to entrance and the process of graduation—was in a position, after attending one of the English or Scotch colleges, to present himself for examination at the Royal College of Veterinary Surgeons, and receive his diploma. The Council would readily see with what facility such a person might gain an entrance to or become a member of the Royal College of Veterinary Surgeons, and the advantages he had over and above those who followed the usual curriculum of the English and Scotch schools. For example, he might, without mentioning names, point to a particular school whose conditions of entry did not provide for any preliminary examination. A person was admitted as a student, and he might, if he would, graduate in the course of about nine months. The provision of entry was as follows:—The session began in October, and continued until the end of March, a period extending a little over five months. Junior students could enter any time until January, so that any intending student, after having completed a sessional course of three months and a subsequent sessional course of six months, was eligible to present himself for examination at that particular school. He would become a graduate of that school, and was then in a position to come over to this country

and could submit himself for examination after spending six months at either one of the English or Scotch schools. He could thereby practically render himself a member of the Royal College of Veterinary Surgeons in something like fifteen months, whereas their own students were required to attend twenty-two months, to undergo a strict preliminary examination, and to devote themselves to a very extended curriculum. By previously passing through the curriculum of colonial and American schools, intending members of the Royal College of Veterinary Surgeons obtained their diploma in a much shorter period of time than those who went through the ordinary curriculum of the English and Scotch schools. He would therefore suggest that Bye-law 47 should be as follows :—"A student holding a foreign or colonial diploma from any veterinary examining body recognised by the Council, shall be exempt from attendance on the course of lectures for the first two years, and from the examinations at the end of those years respectively, provided he has regularly attended a veterinary school for not less than three winter sessions of six months each, and qualified in the subjects comprised in the first two examinations of the Royal College of Veterinary Surgeons." The last paragraph was intended to meet the discrepancy in the curricula of the American and Canadian schools, which, in some instances, had not a chair of botany, and in others, had not a chair of histology. He would also like to ask the opinion of the Council, in the event of the resolution being passed, as to whether it should be made retrospective or merely prospective. It might be considered unfair for men who had already graduated at American and Canadian schools to have impediments thrown in the way of their becoming members of the Royal College of Veterinary Surgeons. If the resolution he had brought forward were passed, he was of opinion that it would operate beneficially upon the schools referred to, and would induce them to extend their period of study, to enlarge their curriculum, and, above all, to establish a preliminary educational examination.

Mr. DRAY asked Dr. Fleming to give the Council the benefit of his views upon the question then before them.

Dr. FLEMING said he was rather averse to the motion of Professor Axe, and for this reason, that very few members of the profession from the American continent come before the Royal College for examination ; and he must confess that those seven or eight gentlemen who had presented themselves for examination since the present bye-law had been in operation, had passed a most creditable examination. These gentlemen had come to this country voluntarily to obtain the diploma of the Royal College of Veterinary Surgeons, after having already studied, passed the examination, and become members of the profession on the American continent. He felt sure that none but the very best men would travel to this country to obtain the diploma, and they would come with the full confidence of doing their utmost to get it. The suggested alteration in the bye-law would, he thought, throw a slur upon the colonial schools. The admission of colonial colleagues to be members of the Royal College was a thing rather to be fostered than stamped out. He did not think they ought to debar those gentlemen who were so proud of their profession, from coming to this country to obtain the diploma. He agreed with Professor Axe that every means should be taken to protect their diploma, so that it should be held by none other than worthy men ; at the same time, he felt confident that none but worthy men would come over to this country, because, as they all knew, the examination for the diploma was a very severe test. If a man passed the final examination well they might depend upon it that he was fit to practise his profession.

Mr. GREAVES thought it desirable that the bye-law should not be altered.

Professor AXE said he did not know that there were three better men in the College than those Americans who had recently passed. He might, how

ever, mention that he had brought forward his motion at the instigation of one of those gentlemen, who had informed him that it would be received in America by the bulk of practitioners there as a step in the right direction. There was, however, one aspect of the question which Dr. Fleming had not touched upon, and that was as to whether it was not an inducement for persons in this country to go over to America and take their degree there and then return, in order to escape the preliminary examination, and also the more advanced curricula. If it was the view of the Council that his motion was not a step in the right direction, he would not urge it, and would have great pleasure in withdrawing it.

The motion was accordingly withdrawn.

Mr. DRAY proposed, and Mr. WHITTLE seconded, a cordial vote of thanks to the chairman, and the proceedings ended.

CENTRAL VETERINARY MEDICAL SOCIETY.

A MEETING was held on the 3rd December, 1885, at the First Avenue Hotel, the President (Mr. F. W. Wragg) in the chair, and fifteen Fellows being present.

Mr. F. SMITH exhibited a hinged shoe which he had devised to treat contraction of the feet.

Mr. J. H. BROWN showed an extraordinary number of calculi, which were taken from the intestines of a pony ; knowing the history of the animal for eight years, he was aware that it had been in good condition, regularly worked, and not subject to Colic to any exceptional degree.

Mr. F. SMITH then read an essay on "Air and its relation to Health and Disease" (since published in the VETERINARY JOURNAL).

Mr. HANCOCK then alluded to the indebtedness of the Society to Mr. Smith for so interesting a paper, and said he thought all would agree that the necessity of pure air to maintain health could not be too strongly insisted on, and that it was very important to fully consider the means and extent of its vitiation ; yet the discussion of an essay so exhaustive, and so based on statistics and figures, could only be properly attempted after an opportunity had been afforded of reading it in print.

Mr. GIBBINGS said it appeared to be the opinion of the essayist that the foulness of the air in stables was the principal cause in the production of chest diseases ; he said he would not like to admit that, for he had observed cases which pointed to an opposite conclusion. He had at one place the attendance of a number of horses, about sixty. Recently, new stables had been erected, and were placed on the first floor of a building ; openings were left between each stable to give free ventilation, and coughs and colds had been of very frequent occurrence. He then adopted the plan of covering the ventilating shafts with tarpaulins, under the impression that the temperature of the building was too low ; the immediate consequence was that the stables became much warmer, and a catarrhal or bronchial affection was now a comparative rarity.

Professor AXE : The subject of this paper is one of paramount importance in the great question of veterinary hygiene. To us who have to deal with the lower animals, whose habits and instincts are uncontrolled by those higher attributes and considerations of sanitation which determine the well-being of man, it is peculiarly interesting and attractive, and we are much indebted to the essayist for having brought before us so many instructive facts and figures bearing on the composition and contamination of air in the habitations and surroundings of our domestic creatures. The subject of air in its relation to health and disease has hitherto received but little attention from members of our profession in this country, and it is to be hoped that the new

departure which Mr. Smith has initiated will be carried on in the same spirit of thoroughness in which it appears to have been conceived. That stables, cowsheds, kennels, and the dwellings of our lower animals generally are, and must, by the very nature and habits of the creatures which occupy them, be considerably vitiated by the products of decomposition and decay, is distinctly obvious; yet it cannot be overlooked that the mortality and loss from preventable atmospheric pollution in this metropolis and other large towns is a serious reflection on the sagacity and intelligence both of the owners and managers of stock, as well as members of our profession. It is perfectly true that much of the disease and suffering occasioned by insanitary air is the outcome of that unfortunate crowding and want of space in our animal habitations which is incidental to all large centres of commerce; but it must, at the same time, be admitted that negligence and ignorance of the laws of life and health, and especially of the ways and means and importance of effecting a frequent and complete change in the atmosphere of our stables, are responsible in a very large measure for the losses we annually suffer in our domesticated stock. It is to be regretted that a subject of so much real importance to us should be summarily dismissed from our attention. The paper is one requiring much thought, and it is under circumstances of this kind that one feels in need of a longer acquaintance with the matter than can be obtained through a mere reading. I hope the time is not far distant when copies of papers on special and important subjects like the one under consideration may be in the hands of members at least one week before the date of meeting. This would be a distinct advantage, which the institution of a Journal of the Veterinary Medical Societies would, no doubt, tend to consummate.

Mr. SHEATHER expressed his pleasure at hearing the essay, and said it would be realised by but few how many hours of study and work the preparation of such a paper would entail. He said it was pointed out by the essayist what a great decrease occurred in the annual mortality from Glanders in the French cavalry horses between 1847 and 1866, and the improvement was attributed to good ventilation; but he thought several other factors may have helped to produce this good result, such as a better acquaintance with the nature of Glanders, and the hygienic measures such knowledge would suggest. Regarding one of the essayist's tables, he said it appeared that in the same stable the amount of carbonic acid was sometimes twice as great as it was at others, and, therefore, it seemed that contamination was not always constant; and he thought that such a difference, which presented itself on two separate occasions of analysis, might occur twenty times in a day. These figures are interesting, he said; but as their constancy cannot be relied on their scientific value was decreased. We could judge of the amount of pollution of the atmosphere, to a large extent, by our senses, and we should rather direct our energy to discovering and remedying the cause of contamination.

Mr. MOORE then proposed, and Professor AXE seconded, that further discussion should be postponed till the next night of meeting. This was agreed to.

Mr. SMITH, replying to the remarks made, said: In speaking of the decrease of mortality among the French cavalry horses, I endeavoured to show that improved ventilation, increased cubic capacity, feeding and general care, all had their part in effecting the reduction of mortality. It is true that there is a variation in the amount of carbonic acid found in the same stable at different times, but the difference is not sufficiently great to prove that carbonic acid is not an important factor. The senses can detect the presence of carbonic acid up to a certain point—I think it is 1·2; anything above this represents increased impurity in the air. I quite agree with Professor Axe that we cannot always carry out the improvements which sanitary science suggests, and that manure heaps must often be placed much closer to the stable than thirteen yards; but that is no reason why we should not determine

the distance which ought to separate them. It is true that the carbonic acid does itself do much harm, but it is used as an index of the amount of organic matter which is present; it is this organic impurity which does the mischief. I am afraid that a mistake has also been made by some gentlemen present as to the extent to which I consider that Pneumonia and Pleurisy are due to impure air; there is no doubt that these complaints are often caused by exposure to cold and wet, but I wished to draw attention to the opinion, which is gaining ground, that impurity of the air greatly tends to produce Pneumonia and other thoracic diseases. In the instance spoken of by Mr. Gibbings, the dampness of the new buildings may have had some effect in causing illness at first. It is a fact that a stable may be warm, and yet pure in atmosphere; also, it may be atmospherically healthy, and at the same time very draughty.

ALFRED BROAD, *Hon. Sec.*

THE WEST OF SCOTLAND VETERINARY MEDICAL ASSOCIATION.

THE annual meeting of this society was held in the Veterinary College, Glasgow, on January 27th. There was a good attendance of members and friends. After some preliminary business had been disposed of, Mr. ANDERSON, jun., the President for the year, delivered the following address:—

Gentlemen,—In accepting the office of President of this Association for the ensuing year, to which honourable position you have now elected me, allow me to cordially thank you. I hope I shall be able to conduct the onerous duties necessarily incumbent on such a position in a manner that shall enable me next year to vacate the chair with the reflection that “the burden which was well borne became light.” This wish, however, is only attainable by your assistance and indulgence; and while craving both from you, I also crave your regular attendance at our quarterly meetings, even if it should be at the expense of a little personal inconvenience; then, and then only, will progression and usefulness be established—the two great aims of our Association. I may lack the ability and genius of a number of my illustrious predecessors, but rest assured I have the welfare of the Association at heart, and no personal interest shall prevent me from using my utmost endeavours to promote its welfare, either in the conducting of its affairs, or in contributing my humble mite of professional research. I look back on the history of this Association with pride, especially when I consider that, out of London, it was the first Veterinary Medical Association formed in the three kingdoms; and also when I think that my father was one of its original promoters, and was the first member who filled the office of president.

It is now twenty-eight years since its formation, and it may not be uninteresting to you to hear read a letter then written by Mr. Charles Moir, the first secretary of the Association, to the editors of the *Veterinarian*, intimating the formation, and also requesting them to insert in their journal the proceedings of the first meeting. The letter reads thus:—

“Glasgow, *July 17th*, 1858.

“Gentlemen,—Believing that at all times it is gratifying to you to find that the members of our profession are taking that position which they are justly entitled to, and which perhaps is partly to be accomplished by a mutual determination to advance themselves in a knowledge of their art, I have much pleasure in informing you that a step has just been taken in the right direction by a number of gentlemen in Glasgow. Seeing the advantage which would accrue from the formation of a society having for its object mutual improvement by the discussion of cases, a meeting took place on the 14th ultimo, which, very much to the gratification of those who took upon them-

selves the preliminary arrangements, was attended by a goodly number of the profession, one and all of whom cordially concurred in the object in view, and as such resolved at once to form themselves into a society. A committee was thereupon appointed to prepare the rules and regulations, and to take the necessary steps towards the completion of the society. Professor McCall, of the Edinburgh Veterinary College, kindly consented to address the next meeting, which was arranged to take place on the 18th of the forthcoming month. I have no doubt, from the enthusiasm exhibited, that the society will not only do a vast amount of even individual good to those who take part in its proceedings, but that it will also tend to create that *esprit de corps* amongst us, the want of which has been hitherto sadly felt by all who have the advancement of their profession at heart; and I trust that both you and others will yet hear much of the good effects of the present movement. I send you a copy of the minutes of the meeting, by which you will see that I was instructed to forward a report for your journal, which I hope you will do me the favour to insert, notwithstanding it is late in the month. It affords me also much pleasure to state that it is the wish of this society to be on the most friendly terms with the Veterinary Medical Association existing in your part of the country, and that it will gladly receive any suggestion which you may think important, and also that it wishes to act for the good of the profession, and to do away with any petty jealousy which may exist between the members of the different colleges.—I remain, yours, etc.,

“CHARLES MOIR.”

Now, gentlemen, when we consider that it is twenty-eight years since that letter was written, and yet how every sentence in it reminds us of our present wants—namely, mutual improvement, *esprit de corps*, etc.—a few questions reflect themselves before us. For instance: Has the object of the Association been attained? Have its members contributed sufficient scientific matter for its advancement with the age? and has its existence been the means of creating social harmony amongst its members? In answering these questions collectively, I can certainly say Yes. Firstly, I consider the object of the Association has been well attained, not only for the good it has done its individual members, but also for the good it has done the profession in general, by taking the place of precedent example to all other provincial veterinary associations, whose good fruits are now enjoyed throughout the length and breadth of our country. Secondly, I am sure its members have contributed scientific matter sufficiently to entitle it to rank on an equality with any other existing scientific body, as the leaves of the *Veterinarian* and VETERINARY JOURNAL can testify. Certainly, we cannot all be credited with an equal share of scientific contributions, but the silent member, who regularly attends and gives his practical opinion on any important question when occasion requires it, is equally entitled to share with the propounders of theories and experiments those honours which are due to members of this and similar societies who diligently and energetically attend to the demands which membership necessarily commands. Thirdly, its usefulness in promoting harmony and goodwill amongst its members is, I think, undeniable. Of course, there are unsociable men in the veterinary profession, as well as in all other classes, but these men seldom become members of a society of this kind, they either being too egotistical or too selfish to diffuse what little they really know.

We are at present, gentlemen, passing through an interesting and remarkable epoch in the history of medical and veterinary teaching. Day after day we hear of some new micro-organism being discovered, which we are called upon to believe is the cause of some particular disease, and also that every zymotic disease has its particular microbe peculiar to itself, and that these organisms not only have the power of generating themselves in the living

subject, but can also be cultivated outside the living body, and their virulent effects upon the system become so modified as to make them almost innoxious. In fact, medicine is threatened with an invasion by the microscope, which, if we are to believe all that has been written on the subject, will simplify matters to such an extent, both in the detection and management of some of the most virulent diseases we meet, that we are inclined to believe that by-and-by the demand for our services will be reduced to a minimum. Great praise is certainly due to M. Pasteur and others for their indefatigable efforts in discovering and promulgating this theory of disease, and we, as every-day practitioners, must to a great extent imbibe their teachings as facts, seeing we have neither the time nor opportunities for investigating their correctness. But although it may be ungenerous on our part to confute their allegations, after the years they have spent in laborious research, we can ask ourselves the question, Are we justified in accepting everything they allege regarding Zymosis as truth? or, is not this germ theory of disease being carried too far? My own opinion is that, until we find more conclusive results than have as yet been shown us, we should suspend our opinion by taking the case to *avizandum*. Is it not stretching a point for a man to allege that an outbreak of Anthrax, which carried off a few animals of a herd, was due to the water they drank, which, upon examination microscopically, was found to contain no impurities, but on making cultivations in various fluids and inoculating with the water, the bacillus was developed as beautifully as it was found in the spleens of these affected animals. Imagination and mistaken identity of these so-called organisms go far to explain these allegations. I do not wish, gentlemen, to introduce matter into my inaugural address which may tend to provoke discussion, but I cannot allow this opportunity to escape without bringing before your notice another question in connection with this now-famous germ theory of disease. Besides, seeing we have not a great amount of other business to do this afternoon, a little time may not be ill-spent were we to occupy it in revealing and exchanging our opinions on such an important subject; especially, seeing this subject is to be brought forward at the National Veterinary Association's next meeting, which is to be held in Edinburgh in July. The question is, "Are these so-called living organisms actually reproducers of their own species, or are they merely the results of a certain contagium?" The question is one of such vastness, and of such importance to us as veterinarians, and the writings of eminent men on the subject are so voluminous, that it would be presumption on my part were I to offer a solution of it, or to distinctly differ from the popular opinion held by the greatest scientists of the day, which is that they are reproductive living organisms. Now, my experience in certain zymotic diseases forces me to doubt the accuracy of these alleged pathological truths, and I am of opinion that there is far too much of the "take-for-granted" theory existing amongst us at present. For instance, Pasteur, by experiment, discovers a microbe or promulgates a theory; Dr. Burdon Sanderson tries the same experiment, and fancies he gets the same results; some illumined member of our profession endorses their opinions, because he has translated the same results from some other foreign authority's work; then the members of the profession accept it as they do the Gospel, afraid to contradict it. I do not say, for one moment, that believing in the germ theory of disease, and practising it accordingly, interferes with our usefulness as practitioners—in fact, I believe it assists us greatly in carrying out the provisions of the Contagious Diseases (Animals) Act with greater confidence and more certain results; but still it makes us take too collective a view of zymotic diseases. For instance, I believe that Glanders and Farcy can arise spontaneously in the horse, and Hydrophobia in the dog, each merely requiring suitable environments for their development. Other zymotic diseases may arise differently; but in these two

diseases I have proven to my entire satisfaction, in different outbreaks, that spontaneity was certainly the origin. Is it not possible—aye, even probable—that these microbes or micrococci we see in morbid tissues are the production of disease, and not, as is at present thought, the producers of disease? If we look at Sheep-pox itself, the facts at present known are surely irreconcilable with the notion that the organisms found in the diseased tissues are themselves the cause of the disease. After the first local contact of the contagium with some surface, it is subsequently supposed to multiply and be disseminated through the body by means of the blood. But, on the other hand, it is a well-attested fact that inoculation with the blood of an animal suffering from Ovine Smallpox does not produce the disease in another animal. How can those who believe in the germ theory for Variola Ovina account for this absence of germs from the blood? It is true that in a morbid specimen we microscopically find certain movable homogeneous bodies, morphologically the same, varying in numbers with the stage of the disease or the severity of the attack; but should this alone convince us that, because these organic molecules are growing in numbers under the same environments, their source must be from reproduction? I say No; because we find the same, or at least a similar, change taking place when we chemically unite two or more substances. We have molecular disturbance, chemical affinity, then the formation of distinct atomic crystals, identical in appearance and character, but no more; they are inanimate particles, and therefore non-prolific. A more direct example is shown by the chemical action which takes place by the formation of bacteria when we mix a fermenting mass with a fermentable mass; the bacteria contained in the fermenting mass incite the fermentable mass to produce bacteria from its substance, but in themselves the bacteria are not reproductive. It was a theory analogous to the process of fermentation which was held about contagion, until recently, since the days of Hippocrates, and I must say I fail to see any conclusive arguments adduced by the advocates of the new theory warranting us to change our opinions. Certainly, we can produce these organisms outside the living structure; but that is no criterion for believing that they are living organisms, seeing that they can only be reproduced or cultivated in organic matter.

It will, perhaps, be *apropos* for me to express my opinion regarding a subject which has occupied the attention of the members of our profession for a considerable time, and which has caused many animated discussions all over the country—namely, the Supplementary Charter of 1876, particularly that portion of it which is now known as the Obnoxious Clause. You will, no doubt, all be aware that on the 23rd of August next this clause comes into operation; we will then be deprived of certain privileges which we at present enjoy—namely, being eligible for election as Members of Council or Members of the Board of Examiners. We certainly will feel keenly the humiliating effects of the clause, when we consider that a Fellow of the College can turn round and address a member thus:—"I sympathize with you very much, but the laws of our country say I may associate with you in kirk or market, as hitherto, but we must not enjoy each other's company in the Council Chamber nor at the examination-table, because you have not proved yourself to be worthy of associating with those who compose these Boards. So far as I know, you are ignorant—at least, not sufficiently educated to conduct the affairs of our noble profession. You don't know enough regarding dietetics, hygienic principles, and the like; in fact, you have not kept pace with the times, and therefore you are unfit to know who are and who are not fit to practise the art and science of veterinary medicine and surgery."

This may sound to be ironical language, but, nevertheless, it is the true gist of the clause. Now the question comes to be, Who are to blame for this state of affairs? Certainly the promoters of the Charter are essentially to

blame for their arrogance in ever dreaming to frame such a clause ; but it is unfair to place the whole of the onus on their shoulders, for I consider that each individual member of the profession is entitled to bear a certain share of the disgrace for allowing such an overbearing clause to become law. If we cannot get the clause rescinded altogether, we surely can modify it greatly by applying it to members who may graduate after the date of its coming into force, or, at all events, exempt those members who entered the profession before the Charter was obtained, from the oppression of the clause. These, however, are legal points, upon which I understand opinion of counsel is at present being taken, and should that opinion be against our hopes, I would certainly be opposed to the proposal which has been already made, namely, for us to go to Parliament for redress—at least, for some considerable time to come. Let us bear the oppression peacefully, and let he who aspires for the higher degree befit himself for the necessary examination, humbling as it must be to approach brother-practitioners and ask concession from them to again enjoy the privileges which they were the means of depriving him, and which concession they have in their power the right to refuse without explanation, and from which tribunal there is no appeal unless it be going through the same ordeal again. Gentlemen, is it in accordance with the age that this should be so? Why don't they adopt the medical profession's plan, and give the higher degree to those members who write an original thesis on any subject connected with the profession? Then the whole profession would not only be benefited, but it would also place the Examiners in a position above suspicion of exercising any personal animus or spleen they may have against the candidates.

I should have wished to see the degree of Fellowship placed on a more dignified platform, in not having emoluments thrust upon its Fellows.

I think, gentlemen, the present mode of electing Members of Council is a very honest and fair one, and is satisfactorily carried through ; but I am sorry that so many of my professional brethren should lack that sense of duty which they owe the profession by not taking advantage of the privilege they possess of voting by proxy. I also admire the plan of two or more societies like this combining together in order to return their chosen candidates ; and I consider it is the duty of every member of each society to be true to these candidates by giving them their votes and no others. Mr. Cunningham's (of Slateford) suggestion for returning members to Council is well worthy of serious consideration—namely, that the country be divided into constituencies, and each returning a member or members. I think it would have the effect of making those members vote who are at present sunk in oblivion.

The present system of examining students I am adverse to, and certainly if those gentlemen who constitute the present Board of Examiners have not made its name famous, they have certainly made it notorious, by the great number of students they have rejected. Such large numbers of rejections, which have taken place at almost every examination since the present Board was constituted, are unprecedented, and for what reason? Is the teaching given at our colleges deteriorating? Or are the students of to-day less intelligent than the students of ten years ago? Or are the present Examiners men of supernatural wisdom, and who are determined to reject every man who comes before them unless he be a philosopher? Or is it through a desire on their part to raise the status of the profession to such a height that only men of extraordinary abilities can enter it? I shall be moderate, and accept the last plea. The question is then raised, Does this tend to the welfare of the profession? and is it possible to put old, experienced heads on young shoulders? I have been told a number of questions which were put to students lately, and have considered them, and I am confident, had the same questions

been put to each individual Examiner, their answers would have been widely different. Now, how can a student be expected to answer questions which have not yet been satisfactorily and conclusively settled? One of these questions recently put was, Whether is a horse's foot larger while on the ground than off it? The answer the student gave was that he thought the foot was larger while on the ground; the Examiner, however, thought the reverse, and told the student he surely did not read much. Such questions, I contend, should not be put, as they are open to discussion; and seeing the Examiner and student are placed on such very unequal footings, I consider it is unfair to the student that the Examiner should take undue advantage of his position. I think that at least two Examiners should always be together when a student is being examined, so that all prejudiced opinions and pet theories might be counteracted. I should also advocate for a written examination to be introduced. I also think that a rejected student should not be required to pay three guineas for re-examination, as I know for a fact that it is a widespread opinion that the Examiners make a practice of rejecting students for pecuniary gain.

Gentlemen, I shall not detain you longer with any more remarks upon the topics the profession is at present interested in. I assure you it is an arduous duty to write an inaugural address, as you are sure to give offence to some one or other, more especially if you write it as you think, without fear or favour, as I have tried to do.

The adjourned discussion of Mr. CAMPBELL'S paper on "Warranty and Soundness of Horses" was then resumed.

Professor MCCALL, Messrs. POTTIE, ANDERSON, WEIR, and GARDINER were the chief speakers.

As the discussion proceeded, it became evident that no good could result from such a debate, and the matter was allowed to drop.

The usual vote of thanks brought the meeting to a close.

L. MACQUEEN, *Secretary*.

LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

THE quarterly meeting was held at the Blackfriars Hotel, Manchester, on December 9th, 1885. Present:—S. Locke, Esq., President, and twenty members.

On the motion of Mr. W. A. TAYLOR, seconded by Mr. GREAVES, it was unanimously carried that Mr. Thomas Briggs, of Bury, be the President.

It was resolved that Mr. J. W. Ingram, of Manchester, be the Secretary, and that Mr. W. Woods, junr., of Wigan, be Treasurer. It was also resolved that Messrs. Hugh Ferguson (Warrington) and A. M. Michaelis (of Stockport), be Vice-Presidents, along with Mr. S. Locke, *ex-officio*.

The newly-elected officers briefly thanked the members for their elections. A vote of thanks was then accorded the worthy retiring President (Mr. S. Locke) and the other retiring officers, to which suitable responses were made.

Mr. WILLIAM DACRE then read a paper on the "Periplantaire Method of Shoeing." A very general and practical discussion followed, in which the advantages and disadvantages of this system were fully dilated upon.

Mr. WOLSTENHOLME proposed that the best thanks of this Society be given to Mr. Dacre for his valuable paper; this was seconded by Mr. JOHN LAWSON, and carried unanimously.

The annual meeting and dinner of the above Association was held at the Grosvenor Hotel, Manchester, on February 11th, Thomas Briggs, Esq., President, in the chair. There were present:—J. Roalfe Cox, Esq., President, R.C.V.S.; Professor Williams, Professor Robertson, Professor Walley, and Professor Pritchard, with a large number of members and visitors.

It was decided not to nominate a candidate for the Council of the Royal College of Veterinary Surgeons.

On the motion of the PRESIDENT, seconded by Mr. PETER TAYLOR, an Election Committee, consisting of the office-bearers of the Society, with power to add to their number, be formed, was carried.

The PRESIDENT then delivered his inaugural address as follows :—

Gentlemen,—It is my pleasing duty to thank my friends the members of the Lancashire Veterinary Medical Association for having honoured me with their confidence and esteem. By their vote, I to-day occupy the proud and privileged position of President of this fairly flourishing Society.

It is an equally pleasing duty to thank those friends whom we are apt to call “our visitors,” for their kindness in coming here this afternoon.

On behalf of this Society I give them a hearty welcome, and a cordial invitation to come again and often.

There are many around me who have “passed the Chair,” and who have fully realised the doubts and disquietudes which enter into one’s mind when endeavouring to hit upon happy and proper themes for comment in an address such as this.

Scientific subjects are more or less deemed out of character, and if I content myself with short and somewhat summary remarks upon professional passing events, I trust it will not be thought that I am not fully aware that you expect—and have a right to—some special effort from me.

The Association whose annual meeting we are now celebrating is of comparatively long standing ; and it may safely be said to hold its own in veterinary politics and polemics. Its members may modestly claim that it has largely educated and stimulated not only its own members, but also the reading portion of the profession, in most matters appertaining to the guidance and government of the Council and the colleges.

On its roll-call you will find the names of good men and true, and of men who have given largely and liberally of their time and substance for the well-being of the profession generally.

It would be invidious of me to single out names, especially of those who are now with us. It would be a long labour to enumerate those who have in times past greatly contributed to the prosperity of this Society, and who have now joined the vast majority. Alas ! the old man with his scythe has been busy amongst us of late ; we have had heavy losses. Two Manchester gentlemen, Mr. Thomas Taylor and Mr. Moody J. Roberts, and two Liverpool gentlemen, Mr. William Leather and Mr. Alexander Bain, are no longer seen at our gatherings. We lament their removal all the more sincerely and deeply, when we regretfully remember that not one of them had come within measurable distance of the three-score years and ten which Holy Writ tells us is the allotted span of life.

Since the formation of the National Veterinary Association it has held a foremost place on these occasions, and although I know of nothing new about its career and doings, I cannot pass it by without wishing it well, and without urging those who have not yet joined it to do so at once. The Society is firmly on its feet. It does a vast amount of good work in bringing large bodies of us together in close personal friendship and in honest rivalry, and in disseminating throughout the British Empire a great deal of valuable practical and scientific information.

There is another “National” Veterinary Association—the National Veterinary Benevolent and Mutual Defence Society—which is not so “National” as our South-country friends might make it. This Society has virtually its habitat in Manchester. It was, I believe, born in this city, and has been mostly conducted by gentlemen residing in the vicinity of its birthplace. It is, however, materially sustained by subscribers living in almost all parts of the

kingdom. A few months ago a movement was made by a London gentleman—not a member of the profession—to start a new defence society, but with what success I am unaware. Then, too, a little longer time back, one of our associations contemplated the establishing of a similar society.

Recently, I have had the distinction of being elected to a seat at the council table of what, for convenience, I may call the Manchester Defence Society, and I venture to surmise that I shall not be far wrong in saying to these would-be rival bodies that there is not in the profession room for the three. Let these gentlemen who are, I am sure in all good faith, anxious to have a better society, closely examine the history and constitution of the one which now exists. Let them carefully inquire into its working, and then let them criticise it and suggest some means to extend its usefulness and to bring it into more general favour, and they shall have my hearty help, and I believe they will have the cordial co-operation of the existing management.

The Defence Society was established for the benefit of the bulk of the profession, and is ready to do justice and to extend mercy and genuine substantial assistance to all—for please recollect it is only called into action when someone is in trouble.

There can be no doubt, I hope, that the Council carefully considers and thoroughly investigates each case upon its individual merits, and does its best to arrive at a practical and sensible verdict. Had it not been for the letters in our two journals for this month, I should have had less to say on this subject. The writer of these letters is one of the most indefatigable and ardent supporters of the Defence Society, and has unquestionably its honour and welfare at heart. But his “settling” policy as therein stated is very “unsettling” to my mind. The spirit of compromise with which he appears to be saturated is all very well in its way, but I think it ought to have a much more definable diffusibility. Surely the Society was never intended as a simple go-between—a mere bargainer for easier terms. More probably it was established to “fight” factious and far-fetched cases, set agoing by some litigious malcontent. Although we have the men, and the money too, we don’t want to “fight” if we can arrive at a perfectly honourable and straightforward settlement. We must, nevertheless, have a care. By means of the public press, authenticated reports—that this Society is decidedly desirous of “settling” any and every case in which there is the least element of uncertainty—will soon be placed before the eyes of our clients, and with the result that cases which are not considered good enough for a court of law will be “tried” by threatening letters. Compromises are more or less costly, and it strikes me that a good “fight,” even if the expenses are heavy and apparently out of proportion, is not out of place where it is believed there is no real blame or liability to the law of the land. A fought case finding its way into print, whichever side wins, of necessity exposes weak places, and a lesson is learnt. Still we, no more than ordinary business-men, should shirk our responsibility and seek shelter in a “settling” society rather than contest an unjust claim.

The questions under discussion in Red Lion Square are not numerous at present. The two most important, which almost constantly crop up, are those relating to the education and the examination of the students.

At times we hear loud and strong complaints about this unfairness and that injustice being inflicted upon a school or its students by some stupid bye-law.

One grand object—that of placing the four schools upon a perfectly equable and sound footing—is, I believe, strenuously striven after, and the friction which does occasionally occur generally leaves a smoother surface.

Another grand object steadily staring the Schools, the Council, and the Examiners in the face is that of turning out a man, at the end of his curricu-

lum, fully "qualified to practise the art and science of Veterinary Surgery and Medicine." This is a truly puzzling problem, and is not capable of easy solution.

Immense strides have been made towards this end, and I am certain the teachers are ready and willing to do all that lies in their power.

The so-called "Selfish" (9th) Clause of the 1876 Charter has occupied considerable attention. Having often spoken so strongly, silence on my part now might easily be mistaken. I am in favour of the clause being cancelled, not that I think it in any way injurious or deterrent, but that it would be a pity and a mistake that such a small, insignificant question should cause a split or arouse jealousy in a body corporate, which is otherwise warmly united. At the same time I vigorously protest against the arguments of the agitators. The clause was not thrust clandestinely into the Charter of 1876. It was brought before many meetings of associations, discussed in Council, and approved at an annual meeting. It would appear that we unfortunate Fellows have done something very wrong. How, I am at a loss to know.

In quitting the critical for the constructive attitude, I pass on to speak of a subject which will, I hope, largely benefit and tend to combine our societies, and which will, I trust, equally interest their respective officials. A few weeks ago, I wrote to the editors of the *Veterinarian*, suggesting that they should publish gratuitously, in their monthly issue regularly, a tabulated list of the forthcoming meetings of the different societies, giving names, dates, and places, in a similar manner to that adopted by newspapers and periodicals in the announcement of hunting fixtures, exhibitions, shows, etc., etc. It had often occurred to me that if we knew when and where a certain meeting would be held, one could combine business with pleasure, and have a favourable opportunity of coming into closer contact with professional brethren, and of becoming personally known to men who might, under other circumstances, remain strangers. Speaking for our own Society, we are always only too glad to see fresh faces amongst us, and I feel certain the same feeling exists elsewhere. In reply to my letter, the venerable editor of the *Veterinarian* writes from his marine retreat to say that if the respective secretaries will send the notices, they shall be inserted.

An appeal to the editor of the VETERINARY JOURNAL, who is one of our honorary members, and whom we should, I believe, have had with us to-day had he been well enough, and whose absence we much regret, expresses his willingness to fall in with my views, and to insert, without charge, in his Journal similar announcements.

A highly distinguished member of our profession contemplates the publication of a new "veterinary periodical," and, so far as I can gather, he intends it in a large measure to report and record the transactions of our societies, to contain diagrams and descriptions of all in the allied arts and sciences that will interest and instruct us, and to circulate the latest information immediately respecting our own profession. What form this new serial is to assume, I am not able to say, but I understand the subject is shortly to be submitted to the associations in detail.

Gentlemen, I had hoped to have found time and space for a few comments on the present aspect of some of the contagious diseases of our domesticated animals, and upon a few other topics which were in my mind; but I feel compelled to stop short. Allow me, before sitting down, to express to you all how pleased I am to have your support to-day, and to tell you of my full appreciation of your kindness and attention. What I have had to say is desultory and disjointed, and I must ask for your kind indulgence.

Mr. PETER TAYLOR proposed a vote of thanks to the President.

This was seconded by Mr. THOMAS GREAVES, and carried with acclamation.

The members and friends then adjourned to dinner. The usual loyal and patriotic and professional toasts were proposed, and ably responded to.

JAMES W. INGRAM, *Hon. Secretary.*

YORKSHIRE VETERINARY MEDICAL SOCIETY.

THE annual meeting and dinner were held at the Queen's Hotel, Leeds, on the 5th ult., the President, Mr. Benjamin Smith, Barnsley, in the chair. There were sixteen members and four visitors present.

A discussion took place as to the course this Society should adopt with regard to the election of Members of Council for 1886, and, after considerable discussion, it was decided to co-operate with the Lancashire, Liverpool, and Midland Counties Societies in supporting two candidates chosen by the four societies.

Mr. CARTER, of Bradford, made a few remarks, and proposed that all the Veterinary Societies should subscribe to support a journal giving a full report of their proceedings; but, after some remarks from Mr. GREAVES, the matter was postponed until the next meeting.

Mr. A. W. BRIGGS proposed, and Mr. SCRIVEN seconded the motion, that Mr. W. F. Greenhalgh, Leeds, be appointed Hon. Treasurer, vice Mr. Ferguson resigned; carried unanimously.

The PRESIDENT then read his inaugural address, and after thanking the members for the honour they had conferred upon him by electing him President for the current year, he referred to the great advantages derived from Veterinary Associations, and the great benefits derived by the members of the profession since their institution. He next referred to Clause 9 of the Supplementary Charter, and he trusted that the said clause would be altered or rescinded, so as not to interfere with what he considered the inherent rights of the members of the profession.

Mr. GREAVES moved a vote of thanks to the President for his address, which was carried unanimously.

Mr. GREAVES read counsel's opinion on Clause 9 of the Supplementary Charter, and was afraid that a new Charter could not be obtained under £600, which would be a large expenditure; but he thought the clause was a valuable one, as it acted as an incentive for young men to gain a higher degree. Messrs. CARTER, FAULKNER, and other gentlemen thought that the clause ought to be altered, so as not to interfere with the privileges of the members.

Mr. GREAVES moved, and Mr. CARTER seconded the motion, that a letter of condolence from the Society be forwarded to the widow of Mr. Peter Walker, of Bradford; carried.

LIVERPOOL VETERINARY MEDICAL ASSOCIATION.

THE eighty-sixth quarterly meeting of the Liverpool Veterinary Medical Association was held in the Theatre of the Medical Institute, Hope Street, on February 12th, the President (Edwin Faulkner, Esq., M.R.C.V.S.) in the chair.

There were present—Principal Williams, Principal Robertson, and Principal Walley, and a large number of members and visitors.

Mr. LOCKE proposed, the PRESIDENT seconded, and Professor WALLEY supported a resolution to the effect that Mr. Storrar, of Chester, be nominated for a seat on the Executive Council of the Royal College of Veterinary Surgeons at the forthcoming election in May next; carried unanimously.

Mr. STORRAR then acknowledged in graceful terms the honour which it was proposed to confer upon him, assuring the meeting that, if elected, no

effort should be wanting on his part to promote the well-being and best interests of the profession to the best of his knowledge.

The President and members of the Executive of this Association were then appointed a committee to carry out this object.

In the absence of the Treasurer, who had not arrived, the Secretary was requested to present the financial statement. He pointed out that the finances of the Society were in very low water, a condition of things which was accounted for by the fact that several members had for some years been very irregular in the payment of their subscriptions. In round figures, there was due by defaulting members no less a sum than £43 to the Association. As the consequence, Mr. GREAVES proposed, and Mr. LOCKE seconded, the following resolution :—"That the Treasurer be requested to apply to defaulting members for the immediate payment of over-due subscriptions, and that he report the result of this application at the next quarterly meeting."

Mr. A. V. Field, Mr. A. W. Middlehurst, Mr. Arthur Leather, and Mr. Dobie, jun., were nominated for membership by the SECRETARY, and also Mr. Stafford Jackson by Mr. ELAM.

The PRESIDENT then delivered his inaugural address as follows :—

Gentlemen,—The duty of delivering an inaugural address at the annual meetings of Veterinary Medical Associations is now an established custom, in following which I desire at the outset to tender my warmest thanks to the members of this Society for the expression of their confidence, and the honour conferred in having unanimously requested me to preside over their meetings during the ensuing twelve months.

You who are members will readily understand the feeling of diffidence which possessed me as to accepting office at this crisis—a doubt as to my strength and personal fitness for the work which lay before the President and executive, if this Society was to live. Knowing full well that the past of the Association had at times been brilliant, and that the present was a period in which new societies were being born, I saw no reason why a society which had been in existence some twenty-one years should die, or become amalgamated, before a determined effort was made to resuscitate it ; and if by any means the hearty co-operation and enthusiasm of members could be aroused, the prosperity of years ago might be realised. Societies such as ours, it appears to me, have periods of prosperity and the reverse—as is seen frequently in trade : times when everything runs smoothly, all is vigour and activity ; others, when there is only lukewarmness, scanty attendance at meetings, the benefits to be derived from which not appreciated. Such has been our condition for some time past, owing to the defection of many who ought to be the backbone and support of the institution. Such, gentlemen, has been the state of things in Manchester and the Midlands within my recollection ; yet look, what are these associations to-day ? Why, they are amongst the strongest, the former having a membership of sixty-eight, the latter, seventy-seven. Is there not an inducement for us, the office-bearers of this Society, to throw in our energies and best efforts to revive shattered fortunes—do our duty, looking hopefully and patiently for a brighter future, on the principle so well set out in the " Psalm of Life "—

" Learn to labour and to wait ; "

in doing which we strive not alone for individual benefit, but the good of all, especially for the advancement of our profession ? Let us remember, gentlemen, what is its due, what we are indebted to it ; and that life is short, there is not time for delay : then combine with us—you who are not members, you who were once members, but have withdrawn, and you who are members, but not active supporters—and assist in that mutual improvement which tends to professional and social progress.

The increase in number and growth of such associations as this is a necessity of the times, if professional advancement and *esprit de corps* is to be maintained ; they act as a landmark, and indicate the spirit of the age. Much good work have they done ; still more remains to be done through their medium, and any practitioner who might be a member and is not, loses golden opportunities of benefiting himself and of keeping his studies up to date : for do we not know that disease is ever changing, taking on new phases and complications, according to varying circumstances and conditions ; that many natural phenomena are as yet unsatisfactorily explained, which science has, and will still have to do much to elucidate ?

Very much useful information can be gathered by those who regularly attend these Association meetings. Personally, I have materially benefited through my connection with them ; and I here express my indebtedness, and feel thankful that such exist. Often have I heard expressions of regret from members of the profession that societies such as ours were out of their reach, holding their meetings at too great a distance to enable them to attend. We who reside in large towns have not this drawback, but are favoured in having only to seize upon that which may be had for the asking.

Prior to leaving this portion of my subject, I feel constrained to say that, in my opinion, very much of that which is elucidated at these meetings, and that might prove of considerable value hereafter, is lost, inasmuch as our discussions are not fully recorded and published. I would ask, Has not the time come for our associations to regularly engage shorthand writers to take complete notes, and for the establishment of an Association Journal, one wherein ample space would be assured for the publication, within a reasonable time, of the general proceedings of these important institutions ? This question I unhesitatingly answer in the affirmative, and consider it a subject well worthy of the immediate attention of the different associations.

The National Veterinary Association has amply justified its inauguration by the considerable success it has already attained. Meetings have been held in London, Manchester, and Birmingham, proving that the idea of concentration and centralisations of all that is best in the profession in this form was a desirable end to realise.

Many excellent discussions of subjects bearing upon professional and public benefit have taken place, all tending to the general enlightenment. The several presidents, with their executive, and the indefatigable General Secretary, have laboured freely and unstintingly, and may, I think, take credit to themselves for having in their day done real good for their profession.

The coming meeting (1886) to be held in Edinburgh, to be presided over by our valued friend, Principal Walley, will, I feel sure, be in no way behind its predecessors ; and I trust many of our Scotch brethren who have hitherto held aloof will be induced to join the Association. The President-elect has already done much for the profession ; he has not spared, but often spent, himself by labour perseveringly performed ; then, let us not forget to support him during his presidential year, by crossing the Tweed in considerable numbers, and thus do our individual parts to ensure the popularity of this Association, for by joining our professional brethren in Scotland we place *en evidence* our desire to amalgamate with them in this and every good work. In this Association we have a platform accessible to all, and where our one end and aim is professional and public well-being.

The veterinary profession has, from small beginnings, without Government grants or State aid, now become a considerable and important institution, numbering some 2,800 members. That it is a benefit to the country, and an essential factor in the nation's welfare, goes without saying, or its progress would not have been so well sustained.

Assistance and encouragement have been given to its students by the Royal Agricultural Society, the Highland and Agricultural Society, Major-General Sir Frederick Fitzwygram, and many others, each and all of whom have taken a kindly interest in its welfare, and deserve well at our hands. The establishment of teaching institutions in London, Edinburgh, and Glasgow—three of which are private undertakings, the result of individual enterprise and perseverance—go to show the material advancement, vigour, and vitality which exist ; and now, as a *summum bonum*, the profession has of itself obtained that which has been so much needed for its future welfare—a home—suitable in all its requirements, I am given to understand, for such a considerable family ; and I am sure that you all re-echo my sentiments in saying, Long may it prosper and be united, for a house divided against itself cannot stand.

In 1876 it was considered expedient that a new class of members of the Royal College of Veterinary Surgeons, to be called Fellows, should be created, in order more effectually to promote and encourage the study of veterinary medicine and surgery ; and for this purpose a Charter supplementing the one of 1844 was obtained.

This step, I take it, no member of the profession disapproves ; a higher degree undoubtedly promotes emulation and professional advancement, but this, of itself, was apparently insufficient for those who drew this Charter. A clause, numbered 9, was inserted, by which it is provided that, after August 23rd, 1886, none but Fellows or members of the then Council can serve as members of Council or Examiners of the Royal College of Veterinary Surgeons. In the 1844 Charter it states that Members of Council shall be elected from amongst members of the body politic and corporate. From that date down to 1886, members have had the privilege (if chosen) to act as Members of Council or Examiners. The privileges then granted, what have they done to forfeit ? Why take them away, and say, “ If you will submit yourselves to another examination, pass, and pay £15 15s., we will give you those privileges (which we took from you as members) back again, with the addition of a Fellowship diploma.” I ask, Is this justice ? Are any of those gentlemen who acted as Examiners and Members of Council prior to 1876, and have so acted since, any better Examiners or more attentive and enthusiastic as Members of Council since they were Fellows ? Echo answers No. Then, why debar those who are still competent and capable for either position, though unfortunate in not being Fellows, but members coming under the operation of coercion Clause 9 ?

No doubt the object sought—viz., to get all that was best and most capable in the profession made into Fellows—has not been attained, so far. If there were no members competent to act either as Members of Council or Examiners, nor any likely to grow up, notwithstanding our improved college curriculum and higher standard of examination, then I should say that the members had no grievance. But what do we find from 1876 to 1886 ? Notwithstanding there being an abundance of Fellows, the profession at large elects to send some *members* to Council, and the *Council* themselves appoint some members as Examiners. What does this prove ? Where the profession and Council have unlimited choice, they appoint the men they consider most suitable, be they members or Fellows. What is the inference if the selection is confined to Fellows ? Why, the profession is not so well served.

To the President, Vice-Presidents, and Members of Council I would here say : Your body is supposed to be a representative one, not elected solely by Fellows, but by the votes of the whole profession ; consequently, your duty lies equally towards both. These are not the days of disfranchisement but enfranchisement, and were this clause drawn in 1886 instead of 1876, it

would be thrown out. We give you credit for no desire to depreciate those who are members only, by enforcing this clause ; we do think you all desire to deal honestly and fairly ; and much is the profession indebted to you for the time, expense, and labour you so freely give. Further, we cannot think the Fellows, as a body, will stoop to take (perhaps legally, perhaps not—counsel differ) and enrich themselves with privileges withdrawn, without reason, from their fellow-members.

I am of opinion the Royal College of Veterinary Surgeons have power to obtain the repeal of this objectionable and retrograde clause. As to inconsistency and expense, it is not the first example of the former. In 1844, the Secretary must be a member R.C.V.S., in 1876 he need not ; in 1884 Members of Council must be members, in 1886 they must be Fellows ; and I have no doubt funds could readily be obtained to meet the latter. Remember, *legality* is not alone worthy of consideration. Since 1879 we have been a united profession. Do not divide us now by your own action, but deal out equity and justice.

It is pleasant, agreeable, and refreshing to turn from the discussion of the preceding subject to one of more sympathetic interest, viz., the National Veterinary Benevolent and Mutual Defence Society, a society that, through its executive, has for years been doing a good work, pecuniarily assisting the sick, helpless, widows, and orphans of professional brethren when necessitous. What can be more praiseworthy than such a society existing in and upon the profession?—its officers busy men, engaged daily in practice, sacrificing time and means in order to render help when most needed. Those who are familiar with its working know that it commends itself to the generosity of all those who are able and willing to lend a helping hand.

In connection with this Society—that is, at its recommendation—a youth can obtain a free studentship (provided he be the son of a deceased or impecunious veterinary surgeon) at the New Veterinary College, Edinburgh. This kindly act of benevolence originated with our warm-hearted friend, Principal Williams, and has since been supplemented by Principal McCall, of the Glasgow Veterinary College. To both these gentlemen the warmest thanks of the profession are due.

The defence portion of this Society aims at supporting, providing professional and pecuniary assistance in cases where an action at law is threatened or brought against any of its members, and if the action be arbitrary, harsh, and unjust, the Society undertakes the defence. Much good work has it done, more it is still capable of. Quietly and unobtrusively has it wended its way, and been a source of comfort, support, and relief to many of those who have unfortunately required its services—services which its President, (Mr. P. Taylor), Treasurer (Mr. T. Greaves), Secretary (Mr. G. Morgan), and Council always freely and ungrudgingly give without fee or reward.

I am desirous here of congratulating the Royal Society for the Prevention of Cruelty to Animals upon their suspension of what was considered by many veterinary surgeons as an aggression, or undue interference with their liberty and discrimination in the performance of professional duties. This society has over and over again given ample justification for its existence, and seeing that its end and aim is closely allied with that of the veterinary surgeon—viz., to alleviate pain and suffering among the lower animals—there should exist between this society and our profession a bond of the closest union ; and such would be the condition of things. I believe, if one accorded more credit to the other for a mutual desire to deal honestly and do what was right.

Gentlemen, in the prosecutions undertaken by this society, ought it to be necessary at times for an officer prosecuting to exaggerate his case unduly in order to secure a conviction ? Yet such is the case, owing to a want of equal

fairness and honesty on both sides. Or should it be essential that a veterinary surgeon appear in order to give an impartial statement that may counteract a biased and incorrect official description? Further, has not the time gone by when it should be in the power of an officer of this society to stop in the street any and every case he may choose to take before the Bench, and obtain a summary conviction—the whole taking place within an hour or two—totally unknown to owners, who are unrepresented, and cannot appeal unless the fine be £5? This, to me, is quite un-English, adjudicating upon a case with evidence from one side only.

Another procedure is to send an animal in from work, call subsequently with a veterinary surgeon, inspect, and afterwards leave without saying whether or no proceedings will be instituted. The owner, in happy ignorance, thinks he has done no wrong, until some two or three weeks have elapsed, when he receives a summons. What opportunity, then, has any veterinary surgeon he may call in of correctly knowing the animal's condition three weeks previously? Very little; and if called upon, his evidence is at a discount, as the society's officers well know; whereas, if the owner was aware proceedings would be taken, upon consulting a veterinary surgeon, at once he would know his position, and be able to act fairly by the society and claim fair treatment at their hands. In mentioning these modes of procedure, I look for some reformation, as I am convinced the more honourably, openly, and fairly this society proceeds, the more are they likely to be met on the same terms. An advantage, in my opinion, would accrue to the society, the public, and ourselves, if our profession was more fully represented upon the central and local committees of the R.S.P.C.A., and also upon the magisterial benches.

Many other topics there are which would afford matter to further enlarge upon, such as the present position of veterinary science, college and practical education, and examinations; but I am particularly anxious not to encroach upon the time that will doubtless be more profitably utilised in the reading and discussion of the paper which Principal Walley kindly brings before us.

I will, in conclusion, say that, as this Association was formed in 1864 for, amongst other reasons, first, the establishing, promoting, and maintaining a good and friendly understanding amongst its members, second, the supervision and protection of their pecuniary interests, so it is in 1886.

Let us, then, as members of one profession, strive to be united by observing one towards another a general bearing and course of conduct tending to the attainment of these objects. Strict attention to professional etiquette on the lines laid down (here) so well in November last by Principal Williams, will bring and keep us close in kindly feeling and mutual respect; and if, at any time during the year, there be a cause of unpleasantness occurring between members, let me urge upon them to bring it at once before the Society, that it may be investigated and an arrangement of a satisfactory nature arrived at: do not delay; it is dangerous. And, as a last word, I say, Let us do to each other as we would be done by.

A vote of thanks, at the instance of Mr. GREAVES, was then most heartily and enthusiastically awarded to Mr. Faulkner for his able and thoughtful address.

Professor WALLEY then proceeded to read his essay on

THE FUNCTIONS OF THE VETERINARY SURGEON IN THE INSPECTION OF HORSES AT SHOWS, AS ALSO FOR PURCHASE.

Gentlemen,—When first asked to prepare a paper for discussion by the members of this—shall I say my parent?—Association, I felt at a loss in reference to the choice of a subject which would embrace the true essentials of such a production, viz., attractiveness and utility. Remembering that

such corporations were established for the purpose not only of advancing our art, but also for the subsidiary purpose of improving our professional status; I realised that my field of choice was a larger one than if I were confined to the list of purely professional, or rather scientific, topics. Chance fixed my choice, and thus saved me any further thought on that score. Your President agreed with me that "the Functions of the Veterinary Surgeon in the Inspection of Horses at Shows, as also for Purchase" could be very appropriately and very profitably discussed by a body such as is included under the title of the Veterinary Medical Association. It remains for you to show, by the interest you take in the matter, and the amount of spirit you infuse into the discussion which I hope will follow the reading of this paper, whether you homologate or not the action of your President and myself. My principal reason, Mr. President and gentlemen, for choosing the subject I have done, was this: For some time I have observed in certain quarters a great tendency to disparage the services of the veterinary surgeon in the connection above indicated, and many hard things have been said of us, and of the motives which guide us in the performance of these duties, by writers in agricultural and similar publications. Honest and just criticism need never be feared by any body of men who are possessed of the consciousness that in what they do they are animated by the desire to deal justly by all, and to perform every duty entrusted to them, so far as lies in their power, in a strictly honourable manner; but when base motives are freely imputed, and when every species of ignorance is attributed to them, it is, I think, the paramount duty of all to join together in an energetic and courageous defence, as well as in a vigorous vindication of their professional honour.

Realising my position as a teacher of veterinary science, as a member of your Council, and as having been so recently honoured by being selected as worthy to preside over the deliberations of that Council, I felt that the duty of endeavouring to meet and to answer the charges I have mentioned would be more appropriately performed by such an one as myself than by a private practitioner, more especially seeing that very many practitioners are more or less associated with agricultural societies, and are dependent for a large share of their income upon the fees derived from examination of horses as to soundness, and that, as a consequence, it might be thought that any remarks they might have penned had been dictated by a sense of pique, or personal injury, or slight.

I have said that my choice of a subject was determined by chance; the chance was in the form of an article published in the "Scottish Agricultural Gazette Almanac for 1886," and written by some one who, for reasons best known to himself, hides his identity under a pseudonym, that of "Macgregor," instead of boldly acknowledging his own progeny by adhibiting his proper name. Into the motives which induced the writer to bring an injurious charge against a body of men whose interest it is, and must ever be, to do everything in their power for the good of a science so intimately connected with their own, I do not intend to inquire; but I think you will agree with me when I hazard the guess that "Macgregor" is either a disappointed exhibitor, a self-satisfied judge, or a horse-dealer.

Before proceeding farther, it will be as well to inquire into the function of agricultural, and particularly of horse show, societies. So far as I am enabled to judge from studying the history of these bodies and from watching their operations, they were founded for the several purposes of improving and encouraging agriculture, of stimulating farmers and breeders to cultivate the best breeds of every class of animal, and of so modifying, by judicious selection of sire and dam, the characteristics of these animals as to fit them, as perfectly as animal life can be fitted, for the purposes to which an enlightened and cultivated intelligence has devoted them.

That the intentions of the founders and supporters of these societies have been realised—aye, and more than realised—is proved by the relatively greater value of our live stock as compared with that of any other country in the world. Seeing that agriculture was the original occupation of man, and that its prosecution is an absolute essential of our daily life, we are, I think, more than warranted in glorying in the proud pre-eminence to which as a nation we have attained. But while we indulge in a little justifiable jubilation, we must not forget that a pre-eminent position is at all times difficult to keep, and that other nations will enter the lists and do battle with us on our own ground. That such a contingency is more than a probability has been shown by the success which has attended the efforts of our French friends to compete with us on the Turf, and of Americans and Australians in the breeding of shorthorns.

In a paper read by me in Edinburgh in July, 1884, on the “Relation of Veterinary Science to Agriculture,” I stated that the danger which threatened our high position as breeders of horses lay, not so much in the rivalry of other nations, but in the utter neglect of proper means of assuring ourselves that all horses deemed worth a place in the prize-list were constitutionally fitted to propagate their species. I said, again, that this was “the rift in the lute which was likely to spoil its melody.” How has that warning been received? With absolute indifference! Much more—with attempts to defend an absolutely indefensible position, and that, too, by men whose whole aim and object ought to be not merely the production of a perfect animal, but in honestly using every means in their power to show the world that the animal so produced is perfect.

What means are there at our disposal by which we can accomplish the latter desideratum? Interested writers will tell you, *by appointing impartial and honest judges*. Yes; all men, before they accept this position, should thoroughly determine in their own minds that they will act both impartially and honestly, and yet we hear interested parties declare after almost every show we attend, *that the judging has not been fair or right*. Such interested parties there must, in the natural order of things, always be, as disappointed exhibitors will frequently endeavour to throw the blame of their defeat not on the demerits of their exhibits, but upon the want of honesty, impartiality, or knowledge on the part of the adjudicators. In the natural order of things, again, it is not always possible to find an impartial judge, at least in the sense that the majority of men who either do know or who pretend to know anything about horses have crotchets as to what a horse should be like to be in their eyes perfect. With one man the head is the all-important point; with another, the fore-legs; and with another, the hind-legs. Again, depth of chest and of barrel are demanded; and yet again, the feet, especially the fore, are the only points worth noticing, except, strange anomaly, the amount of feather a horse possesses, and that without reference to its being of natural or of forced growth. Nowhere can we find more convincing proof of these statements than in the article signed “Macgregor.” A judge, in my opinion, should have no crotchets; he should, from experience, be able to give due weight to every point, and especially to those points which are of the greatest importance in rendering horses capable of performing the work for which they are intended. Are the majority of judges capable of doing this? My answer is a decided negative, and for the simple reason (I am speaking particularly of judges of heavy horses) that they have little opportunity of observing the effect of the hardest and most trying of all work to which horses are subjected, viz., town work. Most of our judges of heavy horses are breeders whose experience is confined to the effects of agricultural or rural work; and the greater number of them have received no special training in physiology, or anatomy, or in pathology. By dint of much practice many of

these men attain to a certain standard of excellence, and in an empirical manner are successful in detecting important faults ; but how little are they qualified, in the vast majority of instances, to detect those faults which it is the special province of the skilled veterinarian to expose ; or how can they attach the proper amount of importance to each individual fault ?

"Macgregor" says, "As a rule dealers and farmers are better judges of soundness than surgeons." Listen, my professional brethren, and hide your heads for very shame. But perhaps I am doing "Macgregor" an injustice ; probably he refers to human surgeons, as he does not employ the distinguishing adjective ; if so, I quite agree with him. But taking "Macgregor" at his own estimation, I would like to ask him, By virtue of what special attributes or qualifications is the dealer or the farmer a more capable judge of soundness than the veterinary surgeon ? Does he found his assertion upon an anatomical or upon a physiological knowledge ? No ; for he does not possess such. Does he found it upon a surgical basis ? Perhaps so, but it is of a very limited extent.

Did "Macgregor," I wonder, ever watch the manœuvres of the average judge in his attempts to manipulate a horse's legs for the purpose of arriving at a knowledge of the fact of his being sound or unsound ? If so, he must, if he is the skilled judge of horses he would wish, from the tone of his article, to lead outsiders to consider him—he must, I say, more than once in his life have involuntarily clenched his teeth and screwed up his facial muscles pretty hard while watching the operation, as one is wont to do when a harsh or faulty note in music strikes upon his tympanum. Charming and refreshing in their innocence and simplicity are some of the assertions and confessions of our critics. The dealer and the farmer are better judges of soundness than the surgeon ! Yes, forsooth, when the former wishes to purchase a horse, he can then, very frequently, point out to his fellows and to the seller many defects, the existence of which the latter is not cognizant of, and in the detection of which the despised surgeon would, most assuredly, in many instances, find himself nonplussed ; but in the event of the veterinary surgeon condemning, as being unsound, a horse that a dealer may have to dispose of, he is not only most conveniently blind, but is frequently ready to prove that the veterinary surgeon is wrong in his opinion, by heaping upon his head all kinds of abuse.

Much, says "Macgregor," has been said and written in recent years concerning the importance of soundness in horses to which prizes are awarded at national shows. "This subject has received more attention on account of its having been freely remarked that one of the best known horses of this year (1885) was unsound at the moment of being awarded an important prize." What a damaging admission. What had the judges done with the special qualification claimed for them by "Macgregor" on this particular occasion ?

I will, by his permission, cap "Macgregor's" admission, by informing him that I have seen a roarer in one instance, and a blind horse in another, placed at the top of the prize-list. Nay, more : one of the best horses, or one that was generally looked upon in that light, that ever trod Scottish soil, could not go fifty yards, even at a jog-trot, without emitting a very undesirable and inharmonious musical note from his larynx ; and one of his progeny, looked upon as the best colt of his year, could not trot a hundred yards without proclaiming, in a most pronounced manner, that he, like a good son, followed his father—at least, in his fondness for music.

Large premiums are offered by our agricultural societies for the best sires, and it is, I aver, a sin and a shame that every possible precaution is not taken to ensure that these animals are worthy of the position to which they are elevated. In most instances, I believe, in England the question of soundness, and particularly the question of *freedom from hereditary defects*,

is looked upon as of primary importance ; and in many instances the directors of shows stand firmly to their guns and uphold the decision of their veterinary inspector, upon whose dictum they implicitly rely. Of one such case which came under my own observation I have a very distinct recollection. It was a case in which a hundred pounds premium had been awarded by the judges to a particular stallion, as the best stock-getter for hunting purposes in the yard. After the award came the veterinary examination ; it showed that the horse had a curb, and consequently in the judgment of the veterinary surgeon and of the directors of the show he was disqualified. The decision, as such decisions usually do, caused a great explosion ; the owner of the horse loudly declared his intention of invoking all the veterinary aid he could press into his service, and he succeeded in securing that of several eminent men, but the directors stood firm. The owner and his professional supporters were right, the horse was sound in a sense—he was what is called *practically sound*—but the question was, “*Is he sound for the purpose for which the premium is awarded?*” The veterinary inspector and his friends, of whom I was, quite accidentally, one, said No, and the premium was withheld in consequence.

(*To be continued.*)

PROCEEDINGS OF THE THIRD GENERAL MEETING OF THE NATIONAL VETERINARY ASSOCIATION.

(*Continued from page 387, vol. xxi.*)

The evil results of inoculation are extension of the inflammatory process along the tail to its root, and thence to the vulva, perinæum, vagina, pelvis, anus, thighs, udder, scrotum, and muscles of the haunch, back, and loins. This result is more likely to occur if the system of the animal operated on is unhealthy at the time, or if sufficient care has not been exercised in the selection of the lymph ; but occasionally it occurs where every precaution has been strictly observed, and in the hands of the most skilful operators. Doubtless in such cases the lymph possesses unusually virulent properties, or the system of the inoculated animal is peculiarly susceptible to the action of irritants. The inflammatory condition is allied in many respects to erysipelas, and we know how much more liable to this form of inflammation some constitutions are than others.

Although the inflammatory condition set up by inoculation with P.-p. lymph, is, on the whole, a circumscribed one, it is nevertheless an infective one ; and as such, like all other infective inflammations, may pass far beyond its original boundaries—mainly, of course, by the lymphatics.

When the inflammatory action is about to extend upwards, the local symptoms become intensified; the heat, tenderness, redness, and swelling are increased, and the systemic symptoms are more pronounced.

In July, 1883, a cow, which had been inoculated by Mr. Rutherford, died, owing to the lesions extending to the connective tissue around the right kidney. The inoculation had been successful, and Mr. Rutherford had amputated the tail, but no extensive lesions existed either about the base of the tail or haunch. On *post-mortem* examination the new tissue around the kidney existed to such an extent as to cause it, when laid on the table, to present the appearance (in shape) of an enormously enlarged and elongated large pulmonary lobe. The peritoneum around the bladder and uterus was very much inflamed.

If the inflammation terminates in sphacelus—either circumscribed or diffuse—the involved parts become of a dirty red colour, cold and insensible, and a line of demarcation separates them from the healthy structures; moisture may, or may not, appear, and form phlyctenæ on the surface,—this will depend upon the form of gangrene (*i.e.*, whether it is wet or dry). In some cases large swellings are formed in the neighbourhood of the hips, which on incision give exit to fluid or semi-coagulated lymph, and if undisturbed this lymph may degenerate and form abscesses; if abscesses are formed, they are sometimes succeeded, on eruption, by unhealthy, chancrous-looking ulcers.

The inflammatory action may kill the animal by exhausting the vital powers (though it is wonderful to what length it may extend before alarming constitutional symptoms are developed), by involving the pelvic organs, by sphacelus, or by the absorption of septic matter producing septicæmia.

Treatment of inoculated part, if untoward symptoms appear.—The majority of operators recommend (what indeed is the most natural and rational method of treatment), if there are any signs of gangrene or of extension of the inflammatory action, that the tail should be at once amputated. Mr. Rutherford pertinently remarks that, if possible, the amputation should be carried out to a point above any plugged vessels.

For the purpose of arresting the hæmorrhage, a ligature of tape, with a small compress of tow (on the middle coccygeal artery), placed about an inch above the stump, and retained for twelve hours, is all that is required, and saves the animal the pain of cauterisation.

If amputation is not practised, the parts may be deeply scarified and freely dressed with antiseptic applications.

In the inoculation recently practised by myself, I have adopted the precaution of applying a ligature moderately tight *above* the inflamed part, with the result that I have succeeded in preserving almost intact about 60 per cent. of tails; and where the inflammation has from unavoidable causes stolen a march and extended up to the root of the tail, I have effectually prevented its extension to the pelvic fascia, by drawing a line *all round* the part with No. 5 carbolic acid.

Constitutional remedies, depending on the character of the inflammation and the condition of the animal, should not be neglected.

Mortality of Inoculation.—The losses from inoculation are not great—at the outside, three to five per cent., where proper precautions are taken; *unless untoward circumstances arise, there should be no deaths at all.*

Rationale of Inoculation.—The advocates of inoculation hold that it renders animals proof against the contagion of P.-p., if not for life, certainly for some months, or even for years. How does it do this? It differs entirely in its results from all ordinary inoculative contagia, inasmuch, as already pointed out, as it does not produce the same visible effects as the natural disease; consequently, we are not warranted in assuming that the virus enters the blood and circulates through the whole of the system, although the production of some febrile reaction would seem to indicate that it does so; and if it does not enter the circulation, it is difficult to understand how it is that it renders the animal proof against future attacks. If its effects were simply local, its action would not be in any way superior to a blister or seton; and of the wonderful change wrought, within a very short period, in the condition of the blood by the introduction of setons, we have good evidence in their power of preventing many charbonous diseases, such as Black-quarter, in cattle.

Inoculators also make at times two very contradictory statements—viz., that “the inoculation will not take if the animal is already the subject of P.-p.,” and that “inoculation is not only preventative, but curative.” How it becomes the latter, when the system is already saturated with the virus, is

difficult to conceive, unless on the principle of counter-irritation. That the inoculative lesions may be developed even while the system is labouring under the effects of P.-p., I have had, during the last few years, many opportunities of proving. I am satisfied, however, that the operation materially modifies the intensity of an attack, and circumscribes the extent of the lesions.

However difficult it may be to understand the action of inoculation, it is certainly a fact that since its introduction into Edinburgh and Leith by Mr. Rutherford P.-p. has materially diminished; but time is, of course, required to prove that this diminution will be permanent, or that it is due to the operation in any great degree, as periods of decline in the disease are frequently observed in every infected district. It is an undoubted fact that those animals which have been successfully inoculated thrive very rapidly after recovery from its effects; and if it can be deprived of some of its objectionable features, and its prophylactic powers are permanent (though we can hardly hope this, seeing that the natural disease itself is not permanently protective), it may yet prove a great blessing to stock-owners; and those who have so consistently and perseveringly advocated its introduction will deserve the best thanks of the profession and the public.

Pathological Anatomy of the inoculated part.—Whether we look at the structures at the immediate seat of inoculation in mild cases, or at the tissues in the pelvic region in virulent inoculative inflammation, we shall find a condition of matters closely allied to that which is seen in the lung-tissue in the natural disease—at least so far as the pathological processes are concerned.

These processes are not confined to the skin and the subcutaneous tissues alone, they extend to the muscles and other adjacent organs.

If a section is made through the skin of the inoculated part, it will be found that the dermis is greatly thickened, infiltrated with lymph of a yellowish or straw colour, and its vessels intensely hyperæmic; here and there hæmorrhagic spots will be detected.

The subcutaneous connective tissue, the structures of the vulva (occasionally the vagina, bladder, uterus, perinæum, and anus), and the pelvic fascia will be found in the earlier stages surcharged with the same yellow—fluid or semi-fluid—lymph, and in the later stages they are the seat of a new interstitial growth, which ultimately becomes organised, and, in case of recovery, forms a part of the system.

The lymphatic vessels are charged with lymph, the blood-vessels ultimately become involved in the process, and plugged with thrombi; while the muscular tissue becomes pale, friable, infiltrated with lymph (moist), and its transverse striæ destroyed.

Microscopical examination of the tissues reveals extensive infiltration with cell elements in the early, followed by increase of exudates and new growth in the later stages.*

Micrococci, similar to those which I have described as existing in the lung tissue, will also be found in large numbers. The affected parts possess a peculiar odour.

The lymphatic glands become inflamed, and either indurated or caseous; in one instance recently, I found that hæmorrhage had taken place into the substance of a gland and the surrounding sub-peritoneal connective tissue to such an extent as to form a hæmatocele several pounds in weight.

If the process is not very destructive, the glands become indurated and mottled, or undergo dry caseation.

* In the light of our recent knowledge of pathological processes, we are enabled to say that in no case do exudates become organised, and that new growths associated with connective tissue are interstitial in organ.

That preventive measures may be successfully carried out is proved by my experience in Edinburgh.

Professor M'Call some time ago stated publicly that the Edinburgh byres "were never free from Pleuro-pneumonia." He spoke in ignorance of actual facts. For a period of twenty-three months—from May, 1880, to April, 1882—there was no case of Pleuro-pneumonia in the city of Edinburgh, and there have been, on other occasions since, periods of several months of immunity from the disease; and I have no hesitation in saying that in the vast majority of instances fresh outbreaks have been due to the introduction of animals (many of them Irish) having the disease in their systems at the time of purchase; very frequently, indeed, has the malady appeared in newly-erected byres or in buildings not previously used as byres.

In reference to inoculation in particular, I have to say, what I have elsewhere stated, that in a certain sense it is a very successful prophylactic measure, in all cases arresting the progress of the disease in a byre; though it is only just that I should at the same time say that I have over and over again met with instances where the disease, not only in byres but in herds, has never extended past the animal or animals first affected. Inoculation is most to be recommended, and is most successful, in town dairies where cows are fattened as soon as they cease to be profitable as milkers, and sent to the butcher for slaughter, and not sold for store purposes. That there is danger of infection arising from inoculated animals is proved by the fact, that even in the lungs of cattle in which the operation has been successful, there may be unsuspected circumscribed patches of disease, that may subsequently act the part of infective centres to new comers. Professor Laws has written strongly on this subject, and although I do not endorse all he says, I introduce his remarks for consideration here.

In an article on Inoculation in *Veterinarian*, July, 1882, pages 468-70, he says—"The liquids inoculated are the virulent products of the lung plague; and as these do not induce disease of the lungs, but only of the tissues where they are inserted, it cannot be supposed that they exert any influence on the economy through any direct action in the normal seat of the disease. If protective at all, it must be by reason of the reproduction of the germs in the blood, or in the seat of inoculation. If in the blood, there must be danger of their being given off by the various free surfaces—notably by the lungs; if in the tail, there is still the risk of the germs escaping from the wound, drying up in the building, and being inhaled by other cattle with fatal results. It is true that the risks are incomparably less from germs escaping from a wound in the tail than from the lungs. Yet, even from the inoculated wound, the disease has been conveyed. Reynal mentions the case of an inoculated Brittany cow at the Alfort Veterinary School which infected two others standing with his.

"I have now under observation a stable into which the lung plague is alleged to have been introduced by inoculation: the stump tails attest the reality of the inoculation, the raw ends of several its recent adoption, and yet the sickness prevails."

"Reason and experience agree in showing that the poison may be thus introduced into healthy stables, and therefore inoculation must be absolutely condemned whenever a speedy and effectual stamping out of the disease is desired. No country has ever succeeded in exterminating this plague by practising inoculation—Spain, Belgium, Holland, Prussia, England, Australia, South Africa, New York, and New Jersey.

"It may be conceded that by means of inoculation the disease has been quickly passed through individual herds, and that, when a country or district makes inoculation universal, the mortality is greatly reduced, yet the adoption

of the operation for healthy herds but multiplies the centres of infection ; and when a country is subjected to this, the plague is invariably kept up by the occasional contamination of young and uninoculated animals.”—Extracted from *American National Live Stock Journal*.

In no European country has inoculation been more extensively, more scientifically, or more fairly tried than in the Netherlands ; and what has been the result ? The following statistics, from the Annual Reports of the Agricultural Department of the Privy Council Office for 1881 and 1884, show that where compulsory inoculation has signally failed, compulsory slaughter has succeeded in so far suppressing the disease, that at the present moment (according to information supplied to me by Mr. Cope) it only exists in the Spœling district.

In the Privy Council Report for 1881 we find that in 1871, with slaughter and isolation and non-compulsory inoculation, there were 6,078 cases.

In 1872, 4,009 cases.

In 1873, when further regulations for the registration and regular inspection of cattle and the restriction of fairs and markets were enforced, there were 2,479 cases.

In 1874 (*inoculation was made compulsory in April*), 2,414 cases.

In 1875—under slaughter and compulsory inoculation, with registration and weekly inspection of suspected herds—2,227 cases.

In 1876—when slaughter of the whole herd was made compulsory—there were 1,723 cases detected.

In 1877, 951 cases.

In 1878, 698 „

In 1879, 157 „

In 1880, 48 „

In 1881, 279 „

In 1882, 62 „ (detected in lungs after death.)

In 1883, 200 „

In 1884, 232 „

LEGISLATIVE MEANS FOR THE SUPPRESSION AND PREVENTION OF PLEURO-PNEUMONIA.

After the lapse of nearly forty years' experience of this malady, our Legislature has conspicuously failed in its efforts to exterminate it, and it was, I take it, the main object of those who suggested the subject of P.-p. for discussion to inquire into the reasons of this failure. In speaking of this matter in the “Bovine Scourges” and elsewhere, I have frequently pointed out that the legislation brought to bear in the past has been abortive, mainly because it has been spasmodic, fragmentary, and permissive in its character ; and I have further stated, and again repeat the statement, that the adoption of half measures will never eradicate the pest. With such in operation, it will still continue one of the opprobria of our veterinary sanitary system. It is for us, individually and collectively, to urge upon the powers that be the necessity of taking the bull by the horns, not only metaphorically but actually, and of effectually arresting his further career by the adoption of the only rational and radical method of suppression, viz., *slaughter*.

I feel convinced that the fault does not lie at the door of the veterinary advisers of the Privy Council ; if I am not mistaken they are unanimously of the opinion that *slaughter is the only effectual preventative*, and it is for us, their brethren, to support them in urging upon the responsible authorities the necessity of carrying it out.

In Scotland, the system of “stamping out” by slaughter has been largely and successfully practised by county local authorities ; but the urban authori-

ties, and especially the Metropolitan Local Authority, have hesitated to place the burden involved in slaughtering on the shoulders of the ratepayers on the justifiable and intelligible plea that, *so long as slaughtering is permissive it would be useless to adopt the system in isolated cases, as in all probability the disease would be immediately reintroduced from without.* I say this argument is justifiable; it is more, it is unanswerable. That which has happened over and over again in the city of Edinburgh, has happened in other cities, towns, and counties in the kingdom. Byres and cow-sheds have been freed from the scourge, cleansed and disinfected to the satisfaction of the veterinary inspector; and all has been in vain, for in numerous instances, in the course of weeks, months—ay, even of days—it has reappeared; and from whence?—from Ireland, or from some adjacent or distant county. In the vast majority of isolated outbreaks in the northern rural districts during the last few years, the malady has been introduced by Irish store cattle; in many of the fresh outbreaks occurring in the byres of the metropolitan burgh, Irish dairy cows have been undoubtedly the sinners. But I do not wish to put the whole of the fault upon these animals; I wish to distribute the credit justly, and I assert *that where the disease has not been introduced by Irish cows, it has been brought in by animals from the northern counties of England.* That there is still going on a vast amount of “blockade running” I am thoroughly convinced, and that there is in some districts a very lax application of existing regulations I am equally convinced; and I do not think I am far wrong when I say that *the short-sightedness, the ignorance, and the meanness of Local Authorities in this country, and of Boards of Guardians in Ireland, has much to do with this present discreditable condition of matters.* Were even the existing regulations (unsatisfactory though they are) rigidly enforced, I am satisfied that the disease would be kept within at least reasonable bounds; and I am further satisfied that those who are anxious and willing to assist the authorities in their endeavours to suppress it would redouble their efforts for the realisation of so desirable an end. As it is, the tail of the snake is alone attacked, the head retains its vitality, and lives and flourishes as a constant source of anxiety, vexation, and loss to those Local Authorities who are desirous of trampling it under foot.

Stirlingshire, to-day, attacks the tail and performs a very successful amputation; the head still lives, however, and to-morrow the enemy has again to be attacked and defeated. To some, the system of stamping out disease by the use of the pole-axe, or the rifle, savours of brutality, and is regarded in the light of an acknowledgment of our scientific ignorance and helplessness. Granted that it is so, science is not dragged into the mire because its devotees fail in the battle with an invisible, inscrutable, and ubiquitous enemy. If we can only check the growth of the seed by starving it, by depriving it of its pabulum, by all means let us do so. As we have, on occasion, done with Rabies, with Sheep-pox, with Rinderpest, and with Foot-and-mouth Disease, so let us do with Pleuro-pneumonia, and we shall undoubtedly reap the reward of all bold and energetic warriors—SUCCESS. Lastly, I would observe *that the system of slaughtering should be associated with imperial compensation.*

Mr. RUTHERFORD said: In opening the discussion on this malady, Contagious Pleuro-pneumonia, I am placed at a great disadvantage, inasmuch as I fully expected to have in my possession some weeks ago, the paper which was to have been written by Mr. McGillivray, who, however, failed to provide it. At the last moment I was furnished with Professor Walley's paper, at a time when I and others were busily engaged in Scotland with the examinations. The result is, that I have not been able to prepare a paper or anything else; therefore, I simply come here to give you my ideas of the

disease, as I have met with it in practice. My acquaintance with the disease dates, like Professor Walley's, from a very early period indeed; from the time when that distinguished Professor of veterinary medicine, John Gamgee, taught in Edinburgh. At that time the byres of Edinburgh—I may say the byres of Scotland, and of the whole country—were periodically decimated by this disease; and no preventive measures were taken to arrest its progress, because it was believed, and we were taught by another distinguished veterinarian, the late Professor Dick, that the disease was not contagious. It was as much as our comfort at College was worth to question that opinion, and none of us dared to do so. However, I had the good fortune to witness and know of some of Professor Gamgee's operations; and I noticed that although he killed a large percentage of the animals he operated upon, still those that survived, however much they were exposed to the disease afterwards, had immunity; nor did they seem to communicate the disease to those with whom they cohabited. Professor Walley makes special reference to the contagiousness of the disease. It seems to me he draws a very narrow line between contagion and infection. As to its infectiousness I have no doubt; and you who have taken the trouble to consider the matter will say it is both contagious and infectious. The disease itself is simply a specific fever, and the lung lesions are a sequel of that fever. If the virus introduced into a healthy animal can produce similar lesions, we have satisfied ourselves that the disease is contagious. I do not think it is necessary or advisable to have *lung lesions* as the result of the operation: if lung lesions were produced, it would render the operation worse than useless, for every animal inoculated would become a centre of disease. Fortunately it does not do so; that I can say, after having inoculated many thousands of healthy animals. With regard to its dissemination, it is easily disseminated by actual contamination. In other cases it is communicated by currents of infected atmosphere. I had a singular instance of this in Edinburgh lately. A part of Edinburgh became affected, and another portion divided from it by a canal, became subsequently affected, although there was no actual contact of cattle. This was a case where the disease was effectually communicated by atmospheric currents—by air charged with the virus of the disease. I have had no actual experience that it can be conveyed by the food being infected, but I have a belief that straw or fodder will retain the contagion for many months. It is undetermined how long a building will retain the disease—three to twelve months, I believe; and I think the present mode of disinfection tends to keep up the contagion. I think the ordinary mode of disinfection by whitewash covers up the contagion; mere whitewash will not destroy the virus, it merely covers it up, and when the whitewash falls off the virus is again exposed: if it were applied boiling hot and strong enough, I believe the results would be different, but mere whitewash is a covering for, and not a destroyer of the contagion. It is not my intention to enter into the paper as to its pathology; that we are all acquainted with. I think you will agree with me the principal reason why I am here is to describe my experience of the practice of inoculation as a prevention to the spread of the disease, and to elicit some discussion from you as to your ideas upon it. As I said before, my earliest experience of inoculation was derived from Professor John Gamgee. I formed my favourable opinion, firstly, from the results of his work, although his operations were very crudely performed. Then I was abroad for some years, where again I had the opportunity of seeing it practised by Mr. G. Mitchell, of Melbourne. On my return to Edinburgh I found the city much as I had left it—indeed worse; the city was a hot-bed of Pleuro-pneumonia. I make bold to say that out of the thousands of cows in the city three-fourths were exposed to the contagion; and it was no uncommon thing for a man's

whole stock to be carried off twice in the same year. After a great deal of persuasion I succeeded in getting a few old friends and clients to try the much-dreaded operation; for the results had been so fearful under Mr. Gamgee, that the dairymen of Edinburgh were opposed to it. My first attempt was in a large byre which now contains sixty or seventy animals, but at that time, reduced to ten or eleven, all more or less suffering from the disease. My friend offered to purchase fresh stock, and I was to inoculate them, and let the operation stand or fall by the result. The result was that those put in passed through the operation, and remained in the byres non-infected and healthy, until they were finally sold out to the butcher; the others all died; and as in this instance, so in hundreds of others. That was the commencement of my operation being successfully carried out in Edinburgh. The operation in itself is a simple one. The collection of the virus is probably one of the most important things to be attended to. And here I must take some exception to what Professor Walley says. He mentions a variety of processes of preservation in pipettes and tubes, and preservation with salt and glycerine. Well, my experience is, the more you interfere with the virus the more certain you will be to have uncertain results. The virus should be collected from a portion of lung in the first stage of the disease, and not from that which has proceeded to the second or third stage of the disease. It should be collected from the salmon-coloured portion. It should be used before it begins to decompose (that is another important item). By introducing it into any part of the animal economy you will produce a marked constitutional disturbance, recognised by a slight rising of temperature and certain processes going on at the seat of inoculation, but the animal will not contract or evince true Pleuro-pneumonia, nor will it produce it in others. One of the objects of inoculation is to allow the animal to pass through it and its effects with as little disturbance or inconvenience as possible. That is best done by inoculation at the tip of the tail. It seems to me the Professor has made a mistake about me at this point; I have not recommended the operation by means of the insertion of a virus-charged suppository. What I recommend is, nothing more nor less than a woollen seton saturated with the virus, and inserted under the skin at the tip of the tail. But in dealing with an outbreak, and before we do that, it is necessary to satisfy ourselves of the health of the animals upon whom we are going to operate. For instance, I make it a rule to examine the temperature of every animal upon whom I intend to operate, to satisfy myself that there is no rise of temperature or other indications of ill health. But, mark you, it does not follow because you have no rise of temperature that the animals are free from the disease, and especially so with animals in cow-sheds and byres. I know many instances where the disease has been in the very early, and also in an extremely advanced form with very little deviation from the normal temperature; and, startling as it seems, it is now, I believe, a well-ascertained fact. The animals to be operated upon should also be as free as possible from all other apparent diseases; and injuries marked by inflammatory swelling; and the other features of that condition. In fact, the animal's should be as free from inflammatory conditions as it is possible to get them. The next point is to place them in favourable conditions for its acceptance, and passing through it with as little disturbance as possible. In hot weather they should be kept cool, in cold weather warm. Little variation is required with regard to diet. At the end of from five to eight days the first symptom becomes evident in local staring of the hair, and the first indications of irruption and escape of virus at the seat of operation. This becomes very well marked from the seventh to the twelfth day—is identical in physical, and, I believe, microscopical character with the virus which had been introduced into the animal, and which was obtained from the lung of another; so that it is quite capable, if

introduced into another healthy animal, of enabling that animal to withstand the disease—that is to say, you can carry through a number of inoculations from one animal to another. The lung virus, however, is always the strongest and most effectual. The only bad results I have had to contend with was in my early days, before I was quite up to managing the animals subsequent to the operation. They arose from the extension of the inoculation, or its results, to the higher parts of the tail, the rump, or to the urino-genital organs. Casualties, however, can be largely avoided by watching the animals closely, and the moment indicative symptoms present themselves amputate sufficient of the tip of the tail. In speaking of the removal of the tail tip by amputation, I differ from the Professor. He recommends amputation and ligature of the part above the seat of section. I have every reason to condemn that mode of operation; it may seem cruel to apply the cautery, but it is by far the best mode of arresting the bleeding and the spreading infective inflammation, which otherwise is apt to go on. To stop it by ligature I hold is practically impossible. On the other hand, by freely cauterising the stump of the tail with a hot iron, you not only produce a new and entirely different form of inflammation, but you cover it with a dry and impervious scab at once, and bring the operation to a successful issue. I may tell you that at one time, when I amputated by ligature myself, I had results which I am afraid Professor Walley must have had, and which were neither satisfactory to me as inoculator, nor to my clients as owners. I trust I should be disposed to adopt that method which would cause as little inconvenience to the animal as possible; if so, then the actual cautery is the one I advocate. With regard to one point about inoculation which I am sure will be raised by the meeting—viz., whether it is possible for an animal, healthy when inoculated, to become a centre of contagion—some hold that it is, and that this is a danger peculiar to the operation. Professor Laws says that it is, and, in fact, Professor Walley, in the paper in my hand, I think, gives a converging opinion: “That there is danger of infection arising from inoculated animals; even in the cases of cattle in which the operation has been successful, there may be circumscribed patches of disease that may subsequently act the part of infective centres to new comers.” That is somewhat different. However, it has been said by some that the disease is likely to be communicated by inoculated animals. Gentlemen, in all my experience, extending now to many years, and hundreds and hundreds of town dairies, I do not know a single instance where an inoculated animal has in any wise become a centre of contagion, *always provided that at the time of inoculation it was healthy*. Of course it is quite possible that in an early stage of the disease an animal may be inoculated, that inoculation fail, and the animal recover; but that is not the same thing as saying that an inoculated animal becomes a centre of disease. My experience relates to thousands of cattle I have operated upon successfully, so successfully that my experience is opposed to what the Professor says. My clients also are of an opposite opinion. Not one, but many scores of animals that are exempt from contagion are submitted to me for inoculation. Why? Because they know the fever induced by inoculation does not spread, and because experience has taught them that if the true disease breaks out, the Contagious Diseases (Animals) Act is set in operation upon them, and that often no ordinary working of the Act, short of slaughter, can stop its spread. It may in isolated exceptions; but is that your experience as a whole? and if it is, would there have been a necessity for the Contagious Diseases Act at all? I am sorry to find the Professor advocates the pole-axe. It seems to me, in a profession which claims to be progressive, we are retrogressing in advocating any dealing of the kind, especially when it can be shown from the work, not of myself alone, but

from that of many others elsewhere, that this operation itself is entirely suppressive of the disease. Why, then, destroy the animals, and put the rate-payers to the enormous expense the pole-axe brings upon them? One of the reproaches on the profession has been that we can do nothing with many contagious diseases. Here is one we can deal with; for I hold that we can deal with it as easily as any ordinary cattle disease. I thank you, gentlemen, for listening to me, and if I can make my ideas more clear in the discussion which is to follow, I shall be very happy to do so.

The PRESIDENT: You have heard the clear and lucid remarks of Mr. Rutherford on this very important subject of Pleuro-pneumonia. I am sure that what he has brought before us must be most interesting to us, especially as provincial veterinary surgeons. It is simply for me to announce that the discussion is open, and we shall be pleased to hear what any member may have to say on this question of Pleuro-pneumonia. I will call upon Mr. Greaves.

Mr. GREAVES: I regret very much that our President has asked me to speak upon this subject. It is a subject I really do not profess to know much about; but by being brought forward in the sanguine manner it has been this afternoon, I think it gains a fresh interest in the mind of every scientific man. With regard to inoculation, I remember many years ago Professor Simmonds and others made some experiments, and to a great extent they were followed by disaster, and, if I remember rightly, were entirely failures. I think the great difference between their experiments and Mr. Rutherford's is, that the latter gentleman is very careful in the selection of his virus. If this is not attended to, it will lead to certain evil consequences. Now, if it is true what he has told us this afternoon, it is a matter of national importance, it is a national benefit, and it should be promulgated throughout the land, and every one will be thankful. I only hope that every word that he has spoken is the truth, and will bear investigation. I have no doubt he is earnest in what he has said, and if it is right, I, for one, shall give him my most hearty thanks.

Mr. ROBINSON: My experience is secondhand. I have had the opportunity of witnessing Mr. Rutherford's mode of dealing with the disease, and I am pleased to tell the meeting that I am very much in favour of what I have seen. Whenever I have the opportunity of bringing inoculation before my clients, I shall not fail to do so. Unfortunately, or fortunately, we have had no opportunity for a very long time of inoculating cattle in our part of the country. I am glad that the advantage of inoculation has been so well demonstrated on the Continent, where it was first introduced by Willems, and where it has also been successfully performed by intravenous injection. Its advantages are so well recognised, that I believe some of the Dutch provinces are about to make inoculation compulsory. Of course, as Mr. Rutherford has very clearly shown, the efficiency of the operation depends upon the care which the animal receives after inoculation has been performed. I would only like to say a few words with regard to the propagation of the disease. I notice that Professor Walley says that Professor Laws, I think, has been able to bring about the disease by placing a sponge saturated with Pleuro-pneumonia lymph in the nostrils of an animal. That may possibly be the case; but I think that the experiments on the Continent go very much to prove that it is scarcely possible. In the *Recueil de Médecine Vétérinaire* for April of this year there appears an instance of the impossibility of communicating the disease by the introduction of Pleuro-pneumonia matter into the nostrils. The experiments were carried out because it was said that some ill-disposed persons had attempted to give Pleuro-pneumonia to another person's animals by placing pieces of the lungs of animals that had died of Pleuro-pneumonia about the mangers and sheds,

the result being that when the nature of the material was recognised, the owner sent for the nearest veterinary surgeon, M. Delaforge. When he arrived and examined the material, he thought the great probability would be that an outbreak of Pleuro-pneumonia would follow ; and the suggestion was made that the animals should be inoculated. The proprietor, however, at that time did not think that inoculation was likely to be effective, and refused. The byre contained fourteen cows, and for a considerable time—I think three months—these cows were watched very carefully, but no case of Pleuro-pneumonia followed. Delaforge was so impressed with the fact, that he thought he would carry the experiment further, and, accordingly, not only did he fill the mangers of his own cowsheds with fresh lesions, but he also placed portions of the diseased lungs all through his shed, containing nine cows. He repeated the same experiment with eleven cows, and again the following year with thirteen. Further he caused the animals even to ingest the material, and no Pleuro-pneumonia followed. With regard to the contagiousness or infectiousness of the disease, I think we ought to recollect what has been discovered respecting these infectious fevers, in which the existence of micro-organisms was first pointed out by the French veterinarian, Delafond. Delafond discovered the presence of micro-organisms (bacteria) in the blood of animals that had succumbed to splenic apoplexy ; but he did not attach to them their true importance, which was demonstrated a few years later by Davaine. It was, however, the experiments of Chauveau which first drew the attention of the medical world to the fact that the virus of communicable diseases owed its power of contagion to solid elements, which he then looked upon as granular matter. His experiments showed that if a virulent fluid were deprived of its solid particles, and the fluid inoculated, the result would be *nil*, the solid particles only being capable of producing the disease. More recently, Pasteur demonstrated the exact nature of these solid particles, which he found to be bacilli, and other vegetable organisms capable of producing disease. Since then Koch, in Germany, discovered the presence of a similar organism in tuberculosis ; and other diseases have been shown, by other pathologists, to have a similar origin. Now, I think if you remember for a moment this fact, that the virus consists only of solid elements capable of communicating the disease, you may see that an animal having inhaled the solid particles liberated from the virulent fluid, the disease would show its lesions most rapidly in the portions most accessible to the cellular tissue, namely, the alveoli of the lungs. That the disease exists equally in the animal inoculated, as Mr. Rutherford says, I am perfectly satisfied. Instead of the material, however, having reached the lungs by inhalation it has been introduced into a portion of the system in which similar changes to those in the lungs take place, but without involving these important organs. In other words, it is at the point of contact with cellular tissue, that the virus manifests its greatest effects, and, therefore, the tail is the part most suitable for inoculation, as the more important organs are thus protected from the serious lesions of the disease.

Mr. TRIGGER : You being, Mr. President, a member of my own college, will recollect the teaching of our then Professor Simmonds. He was very much opposed to this inoculation, and when I commenced practice I certainly neglected many opportunities of inoculating, when I think I might have done so. I may say I am becoming quite a convert to this operation, and had I the opportunity I had some years ago, I should have proved it before now. But the point I want to know is this. I was the inspector where one cow was destroyed. Mr. Nettleship decided to inoculate, and he has done so ; that is within the last seventeen or eighteen days. Supposing, now, in the next few days, we get further cases of Pleuro-pneumonia, how does the compensation to the owner stand affected ? Supposing a case breaks out in a cow

which has been inoculated, and I return it, what will the Local Authority say? Has not the Local Authority power to refuse compensation? That is a case which is likely to turn up. I think the cases mentioned by Mr. Rutherford of no rise of temperature were peculiar. I had twenty-five cows in my own neighbourhood slaughtered, and in each case there was a distinct rise of temperature. I always slaughtered when the temperature rose to 103 deg. Fahr., and never found I was wrong, upon a post-mortem examination. That, of course, was in a case of established outbreak of the malady. But the information I wanted was, whether in case of the disease breaking out in an inoculated byre, the Local Authorities would be liable for compensation?

Professor WILLIAMS: I did not intend to speak, but I think I can throw light upon the question, as I have had instances in which the disease has broken out in inoculated animals, and undoubtedly it was there in a latent state when the inoculation was performed. I am quite of Mr. Rutherford's opinion, that if an animal is free from Pleuro-pneumonia when inoculated, it will remain so. I gave him great encouragement in the City of Edinburgh when he introduced the operation; and I have no hesitation in saying that through that encouragement he has persevered with the operation, which is of great public good. With regard to this animal which may take the disease after being inoculated, the presumption would be—and I speak from experience—that she had the disease before inoculation, and consequently the Local Authority would be liable to make compensation. I am under a very liberal Authority—the Local Authority of the County of Edinburgh—and they think that, if an animal has been inoculated, they still have the power to give compensation. But I think you could go upon the ground, that the animal had the disease before the operation, and, therefore, they are bound by law to give the compensation. As to the results of the operation inducing a condition similar to Pleuro-pneumonia, from what I have watched myself, the lesions of Pleuro-pneumonia are manifested at the point of inoculation. Undoubtedly, the organ most exposed to its introduction through the atmosphere, is the lungs; and by inducing fever, it induces in the lung tissues the lesions characteristic of it. I have watched the operation of inoculation at the tip of the tail, and there you have an exudation similar in every respect to the exudation found in the lung tissue. If you go further, and take the virus from that lung for examination, you may detect in the virus peculiar rounded bodies. If you take that from the inoculated tail, and examine it with the microscope, you get exactly the same organism; the organism is propagated at the point of inoculation, and induces such a change as enables the animal to resist the further progress of the disease. I speak from long experience. Whenever an outbreak has occurred, I have recommended the slaughter of diseased animals, and that Mr. Rutherford should be called in to perform the inoculation. He has done that with satisfaction. I have no hesitation in recommending the Government to take this matter into consideration, and make the slaughtering compulsory, and also inoculation compulsory, for the arrest of the progress of the Pleuro-pneumonia. I feel satisfied that is the legitimate and scientific means for arresting the progress of the disease in this country.

Mr. SIMPSON: As far as my own experience goes, it is not very extensive. One or two cases occur from time to time, but I am happy to say it is extremely rare in my neighbourhood. It is not the first time I have heard of Mr. Rutherford's success. I can only say, I have been looking forward with a great deal of interest to hear what he had to say upon the subject. It seems most convincing; the way in which Mr. Rutherford approaches his subject must convince everybody that he is on the right track. Well, gentlemen, it seems to me the object of this Association was to be of some benefit to ourselves and to the community at large. It has been said by that

eminent authority, Professor Williams, that he takes every opportunity of recommending, after mature experience, the operation to be performed, and he believes it ought to be taken up in some way by the Government. The question is—to take a practical view of this matter—whether it is not the duty of this Association to pass some resolution before we separate, that shall be brought before the Privy Council? If this enormous benefit is to be derived where the disease does make its appearance, I think it is time the Privy Council should know what the profession thinks about it. We must not forget that we are discussing not only inoculation, but the valuable paper provided by Professor Walley. I am sure we all feel deeply indebted to him for coming forward under the circumstances in the way he has done with that paper. There are one or two questions, from a practical point of view, I should like to mention. The first is with regard to the power of the Local Authority to order compensation, as they do in the County of Edinburgh, for animals slaughtered not immediately affected by Pleuro-pneumonia, but by Pleuro-pneumonia induced by inoculation. I shall be glad to be informed under what section of the Act that compensation is paid. If it is paid, it is paid under the Act of Parliament, and ought to be paid throughout the kingdom. That would be a handle to us; so that our clients may have no inducement to think they are sufferers from what they may consider a want of judgment on our part. There is another point with regard to the question often raised: You may go into a herd and condemn the animals, some of them affected to a very slight degree, and some not at all; where does your liability begin and end with regard to any recommendation you may make as to the disposal of the animals? Are you at liberty to say that an animal may be sent to the market when, because it has a touch of Pleuro-pneumonia, you have it killed? What I want to get at is, where is the protection to the veterinary surgeon; is he justified in recommending an animal he recommends to be killed for Pleuro-pneumonia to be used for human food? Local Authorities have peculiar views on that matter. The question is, what is a veterinary surgeon's liability under those circumstances?

MR. BELL: I think Mr. Simpson is under some misapprehension as to the words of Professor Williams; he did not say the authorities would be liable for the death of animals arising from inoculation, but from Pleuro-pneumonia. But I get up to support Mr. Rutherford's statement as to the temperature of animals affected with Pleuro-pneumonia. I have found the temperature to be normal when one lung was nearly gone; that is not at all an uncommon thing. In the district in which I live the Local Authorities leave it entirely to me whether an animal is fit for food or not. Of course I have to exercise my discretion. If it is at an early stage, I consider the animal is fit for food. I believe that has been the case all through the country, and I have never yet seen any bad effects from it.

(To be continued.)

Army Veterinary Department.

Reliefs, and the reduction in the number of veterinary surgeons in India, have brought home the following officers:—Longhurst, Kettle, Crow, Nunn, Morgan, Day, Forsdyke, and Kelly. The latter is in the Royal Victoria Hospital, Netley, suffering from the effects of an accident sustained at Malta. Fred Smith is also a patient in the same hospital, having been admitted because of serious injury to his face and eyes, caused by sulphuric acid being thrown upon them, through an explosion, while working in the laboratory of the Netley Medical School.

Messrs. Mann, Lees, and R. W. Raymond, are home from India on sick leave ; Mr. Caldecott is home on special duty.

Inspecting Veterinary Surgeon Evans, M.D., has arrived in England from a tour of service in India, and taken over the duties at Woolwich from Mr. Lambert, who is transferred to Aldershot.

Obituary.

A CORRESPONDENT reports the death of Mr. J. Malcolm, M.R.C.V.S., of Enniscorthy, Co. Wexford, in October last. He graduated in 1863.

Mr. Henry Priestman, M.R.C.V.S., of London, died on January 23rd, in the sixtieth year of his age, after an illness of a few weeks. The following appropriate notice of him appeared in *The Live Stock Journal*:—"Mr. Priestman had a vast experience as a practitioner, especially in relation to dairy cattle. He had, perhaps, the largest practice among dairymen's stock of any veterinary surgeon of the day in England, or elsewhere. He was the first to discover and give information of the Cattle Plague in this country, at the time of the outbreak of 1865. He was an independent thinker and an accurate observer. He was well known and implicitly trusted by all London dairymen who knew him, and there are few among them who did not know him personally, as all did by reputation. The various diseases enumerated in the Contagious Diseases (Animals) Act, 1878, were his especial study, notably Pleuro-pneumonia. He was a firm believer in inoculation as a preventive of the disease, but no less was he sound and practical in his advice to avoid infection, to slaughter immediately all the diseased cattle, and to isolate and quarantine the remaining portion of an affected herd. His diagnosis of Pleuro-pneumonia in all its stages—especially his detection of the malady in its earliest manifestations—had almost the character of infallible intuition. He was well-known, respected, and frequently consulted by the most eminent veterinarians of the day. Mr. Priestman was a genial companion and a true friend."

Mr. James Moore, M.R.C.V.S., died on January 30th, at West View, Hendon, Middlesex, aged seventy-nine years. Born in New Cumnock, Ayrshire, he studied at Dick's Veterinary College, where he graduated in 1837, gaining the silver medal for anatomy, and commenced practice in Glasgow, where he remained for some time ; then he moved to Leeds, afterwards to Manchester, and finally to London, where he had an extensive *clientèle*, which he only resigned in 1883. He was a member of Council of the Royal College of Veterinary Surgeons from 1873 to 1877, and was also a Fellow of the Central Veterinary Medical Society. One of the earliest among the veterinary surgeons in this country to adopt the medical doctrine of Hahnemann, Mr. Moore enthusiastically practised homœopathy with signal success up to the end of his career, and enjoyed the confidence and patronage of many of those who believe in that system of medicine. After the death of Mr. Haycock, of Huddersfield, he was, we believe, the only veterinary surgeon in the United Kingdom who professed and practised homœopathy, and the large number of works he published were written with the view of demonstrating its advantages over the more popular system of allopathy. The list of these writings is as follows :—"Outlines of Veterinary Homœopathy" ; "Lung Disease of Cattle (Pleuro-Pneumonia) Curable by Homœopathy" ; "Milk Fever, its Homœopathic Treatment" ; "Common Diseases of Animals" ; "Veterinary Homœopathy Illustrated by 125 Cases" ; "Practical Reply to Sir B. Brodie's Letter on Homœopathy" ; "The Cattle Plague" ; "Cases Illustrating the Success of Homœopathic Treatment of

Cattle Plague, with an Account of the Norfolk Trial"; "Diseases of Dogs, their Homœopathic Treatment"; "Distemper of Dogs, its Homœopathic Treatment"; "Handy Book of Veterinary Homœopathy"; "Foot-and-Mouth Disease"; "Horses Ill and Well"; "Dog Diseases Treated Homœopathically."

C. C. Sanderson, M.R.C.V.S., of Clapham, Surrey, who graduated in 1867, died early in February. Also E. Wheeler, M.R.C.V.S., Isle of Wight, a graduate of 1836; and G. F. Baker, of Beeston, Leeds, who graduated in 1842.

Notes and News.

METAMORPHOSIS IN NEMATODES.—Dr. von Linstow sums up our present knowledge of nematode worms as follows:—The Nematelminthes, according to the medium in which the individual developmental stage is passed, present a truly wonderful series of metamorphoses, and no less than fourteen distinct developmental stages may be enumerated. (1) The embryo passes into an adult form direct (without the intervention of a larval stage) in the one medium, and also passes its existence in fresh, salt, or brackish water, in plants, in the earth, or in decaying substances (*Dorylaimus*, *Enoplus*, *Plectus*, *Monhystera*, *Rhabditis*, and many other genera). (2) The larvæ live in the earth, the adult form in plants (*Tylenchus tritici*, *T. putrefaciens*, *Heterodera schachtii*). (3) The larvæ live in worms, and on their death and decay pass into the earth, when they assume an adult form (*Rhabditis pellio*). (4) The Helminth lives bisexual in the earth, the fruitful females enter the bodies of bees, and produce therein offspring (*Sphærularia bombi*). (5) The larvæ live in the earth, assuming the adult condition in some animal (*Dochmius*, *Strongylus*). (6) The Helminth lives as an hermaphrodite form in some animal, the offspring develop into bisexual forms in the earth (*Rhabdonema*, *Angiostomum*). (7) Some adult forms differentiate free-living forms developing sexually, and also hermaphrodite forms living parasitically in animals (snails, *Leptodera appendiculata*). (8) The larvæ hatch out in the earth, and then enter some animal, in which they become metamorphosed into hermaphrodite forms (*Trichocephalus*, *Oxyuris*). (9) The larvæ live in insects, the adult form in earth or water (*Mermis*). (10) The larvæ live encapsuled in some animal, and with it pass into the digestive system of some other animal form, in which latter they become adult (*Ascaris*, *Filaria*, *Cucullanius*). (11) For a short time the hermaphrodite form lives in the intestine of some animal, and produces here its larval form, which, penetrating the intestinal walls, makes its way into the muscles, where it becomes encapsuled (*Trichina spiralis*). (12) The adult form lives in the tracheæ of birds; the females lay eggs, which contain well-formed embryos, which get expectorated, to once again enter the bird's system with its ordinary nourishment. In the crop and œsophagus of the bird the embryo hatches out, wandering into the bronchiæ and air-sacs, from whence the larger larvæ find their way to the tracheæ (*Syngamus trachealis*). (13) There will be two larval forms, of which the one will be found in Mollusca, and the other in aquatic beetles and water-boatmen, while the adult form lives in water (*Gordius aquaticus*). (14) There will be two larval forms, of which the one will be found in water, the other in the lung of some Amphibian, from whence it will wander into the intestine of the same animal, where it will develop into an hermaphrodite form (*Nematoxys longicauda*); this latter form is described and figured.—(*Zeitschrift für wissenschaftliche Zoologie*, November 24th, 1885, Band xlii. Heft 4, p. 715, pl. 28.)

UNALLOYED HUMBUG.—The following advertisement appeared in an Irish newspaper not long ago :—"Hydrophobia ; Laurence M'Govern, of Coroge, near Dowra, County Cavan, undertakes to cure any person of that terrible and infectious disease called Hydrophobia, or the bite of a dog in a rabid state, and begs leave to inform the public that he is still in real practice at the above address, where his forefathers resided. The cure is confined in reality to only one member of the family ; the time occupied in effecting the cure is only three days and three nights ; and any person coming in due time will be perfectly cured. The remedy is with our family for the last 400 years or more ; and for the last 35 years a single cure has never failed me. I have on an average cured from 60 to 80 yearly. My residence is within half a mile of Dowra, 7 miles from Blacklion, 6 miles from Drumkeerin, 16 miles from Carrick-on-Shannon, 20 miles from Sligo, 17 miles from Enniskillen, and 10 miles from Manorhamilton. We have known Laurence M'Govern, of Coroge, for many years, and have never known any case to fail if brought in proper time : William Carson, J.P. ; William Clarke, C.C., Dubally, Dowra ; Hy. F. White, Incumbent, Dowra. I am twenty years in this parish, and I have known Laurence M'Govern to have cured hundreds ; besides, I have known him to be an honest man : Hugh de Lacy, P.P., Killinagh ; Stephen Radcliff, Rector. We have known Laurence M'Govern for years to cure Hydrophobia, and have never known any case to fail if brought to him in proper time : Henry Cullen, J.P., County Leitrim ; John Nixon, J.P., Blacklion ; William Nixon, J.P., Blacklion, Thornhill."

SWINE PLAGUE IN THE UNITED STATES.—A subscriber in Sioux County, Iowa, writes :—"We have had heavy losses in this county from Hog Cholera. There have been 5,000, to my knowledge, lost within a radius of ten miles, mostly young ones. There does not seem to be a man who has escaped loss. It made a clean sweep, leaving, in some cases, perhaps ten head, but in many none at all."

AN ARAB HORSE-DEALER'S WARRANTY.—The following is the literal translation of a certificate recently given by an Arab horse-dealer to one of his customers :—"In the name of God, compassionate and merciful, thanks be to God the Lord of the Universe. Prayer and health to the most illustrious of the prophets, to his posterity and to all his friends. Thanks be to God that by His will the firmament moves, that by His mighty power He has created the world, the birds, horses, and every living thing, and to Adam also, whom He commanded His angels themselves to honour. To some of these beings living from the creation the Lord promised His favour, happiness, and paradise, and for others He decreed scorn and His vengeance, which is the hell announced from eternity. Thus it is, as the Lord hath said, He has omitted nothing in the book which was for the pleasure of man. He has granted to him the passion of love for women, of affection for children, for thoroughbred horses, for birds, and for every living thing, and for gold and silver heaped up to hundredweights. And as He has also said, the stable of your horse shall drive away your enemies and those of your God. His shoulders are glory, his entrails are hidden treasures, and his neigh serves to drive away the devil and his armies. All this that has been said comes from the prophet (Mahoma) on the subject of horses, and on him may the prayer and the peace of God rest. And finally this testifies that the mare sold to Don Fulano de Tal, of the illustrious Spanish nation, is one of the mares of pure blood and of the race of Kohelyan Aguiiz, is five years old, has a small star on the forehead, and another small mark on the right foot. The present certificate has been written in the name of the bearer, and on the fifth day of the holy month of Ramazan, and in the year 1302.—(Signed) AHMED."

Correspondence.

MEMORIAL TO THE LATE M. HENRI BOULEY.

SIR,—I have recently received a letter from M. Cagny, the Secretary to the Central Veterinary Medical Society of Paris, in which he has asked me to invite the members of the veterinary profession in this country to assist the Central Society in obtaining the necessary funds for erecting a monument to the memory of the late M. Henri Bouley, who for many years has been well known in the scientific world as one of the most advanced veterinarians in Europe.

It is proposed to invite subscriptions not only from veterinarians in France, but in all other countries ; also from the various scientific societies and all friends of science. It is further proposed to place the monument in the Veterinary School at Alfort, where M. Bouley spent so many years of his busy life, and where a number of Englishmen have had the privilege of receiving instruction. M. Bouley's remarkable abilities and brilliant manners were doubtless more appreciated on the Continent than here, a circumstance entirely due to the fact that he rarely left his native country.

There are, however, many of us here who had the honour and pleasure of his personal acquaintance, and it is to such that I make an appeal direct. I also hope that the profession in general, and the Veterinary Medical Societies in this country in particular, will assist me in carrying out the wishes of the Central Society in Paris ; for it would be a graceful compliment from one scientific society to another, and a practical evidence that the veterinary profession in this country is ready to honour the memory of one to whom honour is due.

A list of the subscriptions received by me will appear in the VETERINARY JOURNAL for May, as the account must be closed early in April.

44, Parliament Street, London.

ALEXANDER C. COPE.

THE LIABILITY OF VETERINARY SURGEONS.

DEAR MR. EDITOR,—Your report of the case against Messrs. Stanley and Scott has been perused by me with much interest. Perhaps you will kindly afford space for some remarks upon the subject of "*liability*." Having, during a long practice, thrown a great number of horses for operation, I may be permitted to give the result of my experience for the benefit of the veterinary profession. In the first place, it may be well to declare that during my professional career some eight or ten cases have met with accidents, such as broken back, fractured limbs, etc., *but not one of them could be said to have arisen from the act of casting*. It was clearly proved that the *struggles* of the animals, after being secured, were the sole cause of such accidents. One case was that of a bay gelding which its owner wished to have fired. The animal was cast in the usual careful manner, and everything proceeded satisfactorily until the operation was finished, when it was discovered that the radius of the left fore-leg was fractured. This animal struggled violently all the time he was down. Another horse, which I considered somewhat weak in the loins, was brought to be fired for enlarged bursæ upon the tarsi. When requested to operate, I objected, stating that I was fearful some accident might happen, as the back was weak. The coachman who attended the horse said he must be fired. The horse was thrown down and the operation performed, and I was glad to see him rise all right. A month afterwards the horse was brought again, to be fired upon the front legs, as the man said they were weak at the knees and he should be fired. I remonstrated with the man, and charged him with wishing to kill the horse. As he escaped the first casting, I had hoped it was all over. The instructions received by this man were imperative. It must be confessed I undertook the operation with a feeling of dread. He was thrown,

and all seemed to progress favourably, although his struggles were violent, when, to my horror, it was discovered, after removing the hobbles, that the brute was unable to regain the standing position, and he lay like a log of wood, powerless ; the back was broken. An army surgeon happened to call upon me at the moment, when I explained what had occurred, and he expressed himself in such terms as were cheering, but at the same time I felt not a little chagrin at being placed in such a predicament. Another case of a four-year-old mare, with large spavins, was brought to be fired. Her hocks were so stiff after a twelve miles walk that she could scarcely flex them. She was thrown in the usual careful manner, and one joint was fired. When she was turned upon the opposite side, I noticed an enlargement upon the inner side of the fired leg, and upon examination found it to be a fracture. One of the farriers said he heard a noise similar to the cracking of wood, which took place during her struggles. The owner was of opinion that some blame attached to the men in casting, and he was advised by his attorney to process me for a certain sum of money, the supposed value of the mare. I defended the case, and satisfied the jury that every care had been exercised in throwing the mare down, and that the operation was performed in a proper manner ; I gained the case. These are a few examples which have fallen under my notice. Some time ago, an attorney called to consult me in reference to a case in which he was interested. He said a client had taken a colt to a veterinary surgeon to be castrated, and that the animal was cast in the usual way, but after operating upon one gland, it was discovered that a leg was broken. He was anxious to know what my opinion was, as his client intended proceeding against the surgeon in order to recover damages. His client was present, and would answer any question put to him. When the name of the veterinary surgeon was made known to me, I remarked that he was the greatest enemy I possessed, and he should accept any remarks I might offer in good faith. Having interrogated the owner as to the condition of the veterinary surgeon and his helpers, he declared they were all sober, and did their work satisfactorily, *so far as he saw*. I then said such things occasionally occur even with the greatest care, and in proof of which I adduced several instances where fractures had taken place in similar cases, and even with less cause. The attorney seemed not to believe my assertions for the moment, but on further explaining matters, he came to the conclusion that it would be useless to take the case into court, especially with such a witness as I appeared to be. The case was abandoned. With regard to the liability of veterinary surgeons, I cannot see in what manner we can be held responsible for an accident in cases of throwing for operations, *provided* there are men enough, that every one is sober, that there is no larking or joking, and every act is performed correctly and with the utmost care. Surely all this is sufficient to exonerate from blame. But there are individuals who are fond of litigation and, should an accident happen, are desirous of not only obtaining payment of two or three times the value of the animal, but they are desirous of injuring the reputation of the practitioner, which is cruel in the extreme. It has been decided by many judges that if a man brings the best of his judgment to bear upon a case, and exercises his skill to the best of that skill or judgment, he is not liable. Every man is not alike endowed with superior ability, but he does his best, and what more can a man do ? I am free to admit there are many ways of throwing and securing horses for operation, and I believe but few know how to secure properly, so as to prevent violent struggles when secured. The *ordinary* method adopted is *incomplete*, and it would be well if some change took place ; perhaps, in the present day, a more complete system is taught at the schools than what I saw in my school-days, but I have not heard of it. When I castrate, I cast with *three fettered legs only*, and secure the fourth after the animal is down. Since I adopted this principle I have never had

an accident to record. As to firing, it is an operation I never—or scarcely ever—perform, and not without great pressure, as I believe it is not needed. I am as averse to firing as I am to docking horses' tails and cutting the ears of dogs ; but I dare to say there are many of us who go in, on the same old and, I may add, cruel groove as our forefathers did. It is to be deplored that operations which are unnecessary should be continued, and if they *are* unnecessary there must be cruelty. I have found that when the head and neck of the animal is *properly* secured, the struggles are reduced to an immense extent. The secret, in my opinion, lies in the fore part of the animal. If the nose is constantly allowed to be lowered towards the chest, no man can prevent struggling ; but let every operator learn the mode of securing the head and neck, and he will have discovered the true method of fastening and preventing violent struggles.

Limerick, *February*.

R. H. DYER, M.R.C.V.S.

PROTECTION FROM IMPOSTORS.

SIR,—I think just at this time of year, when the candidates for Council will be soliciting our support in May, we should seriously consider if the present members have efficiently performed their duty—whether they have represented us or misrepresented us. When our Veterinary Surgeons Act was passed, we quite expected we should be protected from the quacks, and we are often complaining of the apathy of the members of the profession in taking so little interest in its advancement. Now, I think we have had a bad example set us by the Council. In April last, a farmer had in his possession a number of sheep affected with Sheep Scab ; they came out of another district where they were declared by the Veterinary Inspector to be affected. When moved into a fresh district, it was the duty of the owner to give notice to the local authorities, or its officers, of the existence of disease. The sheep being in the district some considerable time, the constable reported the case, and the Veterinary Inspector—a properly-qualified man—was instructed to examine the sheep, and gave a certificate to the effect that they were affected with Sheep Scab. The owner was summoned to appear before the magistrates ; a man styling himself a veterinary surgeon, but who was neither a member of any veterinary college nor a registered practitioner, was employed to dress these sheep, and gave evidence for the defence. He said the sheep were not affected with Sheep Scab. The case was dismissed, and the qualified man's reputation suffered to some extent in consequence. But what I wish to draw the attention of the profession to is, how the members of Council exert themselves to bring the Veterinary Surgeons Act into operation. I thought this was an excellent test-case, as this man, on oath, and when afterwards cross-examined by the magistrate's clerk on the point, swore that he was a member of the Royal Veterinary College, Edinburgh. Of course there is no such institution. I ascertained he was neither a member of any veterinary college nor a registered practitioner, nor held the Highland certificate. The same week I wrote to Mr. Hill, the Secretary of the Royal College of Veterinary Surgeons—who, I may say in passing, always answers our letters with promptitude and courtesy—soliciting him to bring the matter before the Council at the next meeting, and enclosed a local paper containing the account of the trial. I asked them to prosecute or give me their consent to do so, as the Act states that the Council may prosecute in such cases, but a private person shall not do so without the written consent of the Council. Well, the Council did not meet for about two months ; the case was not decided upon then, but was to be held over for the consideration of the Registration Committee, which met three months later on ; and then, after all

this procrastination and humbugging, I received a letter from Mr. Hill to the effect that the Council would not themselves prosecute, but gave their consent for me to do so. The members of our Southern Counties Veterinary Association felt very warm in this case. I convened a meeting forthwith, and I confess with pleasure that every member was willing to subscribe his portion towards the expenses of a prosecution. At the meeting it was resolved that I should, as president, instruct a solicitor to take legal action at once; but on his looking over the Veterinary Surgeons Act, it says fines and imprisonment may be recovered and imposed summarily—that is to say, under the Summary Jurisdiction Acts, 1848 and 1879; then, on referring to these Acts, under Section II., it states that all information must be laid within six months of the offence being committed. The six months had expired, and the chance was lost, entirely from the delay and laxity of the Council to consider this matter as business-men should do. I think when members of the profession are loyal and willing to subscribe to the College their mite, and exert themselves to advance the interests of the profession, the Council ought to prosecute in such cases, and not tell a private member he has their consent to do so; which means that he can put his hand in his pocket and pay for a prosecution which really belongs to the whole profession. I think, after Mr. Fleming's indefatigable exertions in procuring this Act, the Council ought to take a little more interest in putting it in motion in such cases, and I am quite sure a fund could be raised for this purpose, judging from the enthusiasm displayed by the members of the Southern Counties Veterinary Society.

W. MARTIN.

MEETINGS OF VETERINARY SOCIETIES.

THE next meeting of the Lancashire Veterinary Medical Association will be held at the Blackfriars Hotel, Manchester, on March 10th.

Several communications and reports are unavoidably held over until April.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from H. W. Steel, A.V.D., Poona; "Pharmacon"; M. Kettritz, London; J. Matthews, London; J. B. Gresswell, Louth; J. C. Dwyer, A.V.D.; J. C. James, Thornbury; R. H. Dyer, Limerick; J. Macqueen, Glasgow; J. W. T. Moore, Newcastle-on-Tyne; J. W. Ingram, Manchester; A. Broad, London; A. Hill, London; J. S. Hurndall, Liverpool; T. Briggs, Bury; J. F. Oliver, London; W. Broughton, Leeds; Sir F. Fitzwygram, Leigh Park, Havant; J. Dowling Allman, London; F. Smith, A.V.D., Netley; A. C. Cope, London.

BOOKS AND PAMPHLETS: *J. H. Steel, M.R.C.V.S., A Manual of the Diseases of the Elephant*; *P. Flower, An Introduction to the Osteology of the Mammalia*; *E. M. Crookshank, An Introduction to Practical Bacteriology*; *T. Lauder Brunton, A Text-Book of Pharmacology, Therapeutics, and Materia Medica*.

JOURNALS, ETC.: *British and Colonial Druggist*; *Revista Popular de la Exposicion Rural*; *Bladen Nitgegwen d. d. Vereeniging*; *Bevor van Veeartsenijkunde in Nederlandsch Indië*; *Rundschau auf dem Gebeite der Thiermedizin, etc.*; *Revista Argentina de Ciencias Medicas*; *Quarterly Journal of Veterinary Science in India*; *Mark Lane Express*; *American Live Stock Journal*; *Revue Vétérinaire*; *Recueil de Médecine Vétérinaire*; *Annales de Médecine Vétérinaire*; *Wochenschrift für Thierheilkunde und Viehzucht*; *Live Stock Journal*; *Lancet*; *British Medical Journal*; *Journal de Médecine Vétérinaire*; *Echo Vétérinaire*; *Edinburgh Medical Journal*; *Practitioner*; *Archiv für Wissenschaftliche und Praktische Thierheilkunde*.

NEWSPAPERS: *Alnwick Guardian*; *Sunderland Herald*; *Bell's Weekly Messenger*; *Liverpool Mercury*; *Newcastle Daily Journal*; *Bristol Times and Mirror*.

THE VETERINARY JOURNAL

AND

Annals of Comparative Pathology.

APRIL, 1886.

AN OUTBREAK OF SPLENIC APOPLEXY.

BY W. J. MULVEY, M.R.C.V.S., BISHOP AUCKLAND.

THE following sketch of an outbreak of that form of Anthrax called Splenic Apoplexy may at this time, when Professor Robertson is engaged in investigating a somewhat similar outbreak, not prove uninteresting.

On the 10th of February a message was received from a farm called Chilton Grange, seven miles from here, requesting my attendance at once, the messenger stating that they had a yearling stirk very ill, that one of their cows had died suddenly on the 27th January, after only one hour's illness, and that another cow had been taken ill on the evening of the 9th of February, and had died this morning (the 10th). On my arrival, 3.30 p.m., I found the stirk down and obstinately refusing to rise; breathing stertorous, temperature 107.2° ; horns, ears, and extremities cold—in fact, almost in a state of collapse, and it died during the night. The *post-mortem* of the cow which had died during the morning, previous to my arrival, revealed all the appearances usually met with in this disease: the exudations of black, tar-like blood into the areolar tissue immediately beneath the skin, ecchymosed patches diffused here and there through the muscular structure, the heart filled with black, tar-like blood, and an enormously enlarged and easily broken-down spleen. For purposes of examination at home, I brought away with me portions of the spleen and certain other structures, which, on examining them microscopically, revealed the presence of countless numbers of the bacilli anthracis. During Thursday night, the 11th February, a roan stirk, about fourteen months old, died. It was seen by the owner the last thing before closing up for the night, and was then in apparent health, chewing its cud, etc.

The *post-mortem* was similar to that of the cow already men-

tioned. On Friday, the 12th February, I drove over again, and found a white cow presenting all the more marked symptoms of the disease: twitching of the muscles, particularly those of the quarters, nose hot and dry, temperature 106.1° , but still giving a fair quantity of milk. I at once administered the following:—
R: Acid. carbol., \mathfrak{zj} .; P. sod. carb., \mathfrak{zvj} .; Ol. lini, $\mathfrak{z}\mathfrak{v}$.; whisky, $\mathfrak{z}\mathfrak{v}$. This was ordered to be repeated every three hours, with the happiest result, and she is now convalescent. On Tuesday, 16th February, I was informed, on my visit, that the white cow was almost well again, and that so far there had been no fresh cases; but on walking along the byre, my attention was drawn to a large black-and-white cow, standing with her head down, and breathing stertorously—so loud that it could be heard from one end of the byre to the other. On examining her, the pulse was found to be 76, and temperature 106° . The owner informed me that he had been in the byre only half-an-hour previously, and noticed nothing amiss. The same medicine was administered as in the case of the white cow, and with a like favourable result.

On my first visit I endeavoured, in every possible way, to find out how, or in what manner, this disease could have arisen in such an out-of-the-way district. The byres and buildings generally were in good order, large and roomy, substantially built, and with plenty of ventilation. The byre in which the cows were tied up contained twelve animals, a door at each end, one opening into the turnip house and other buildings, the other into a grass field, and a door in the middle, opening into a straw-yard, one end of which is covered in, and in which were two fat bullocks. Into this yard (up to the time of my first visit) was thrown the manure from the cow-byre; adjoining this yard was another, of the same dimensions, separated only by posts and rails, and in this yard, the farthest from the cow-byre, were the stirks, six in number, two of which died. I am particular in mentioning the position of the yards, in order to show that, although these two bullocks were directly exposed to the contagion, from the emanations from the diseased animals, yet no harm resulted, but that two strong young animals, about fourteen months old, still farther away, contracted the disease, in its most virulent form, and died. After a great deal of difficulty, I succeeded in eliciting the information that, at intervals within the last three years, three cows had died in this same byre, two of them suddenly and without apparent cause. Last year a foal died suddenly, and, two years since, more than forty sheep (these were said to be from Fluke). The next inquiry was as to the food and drinking water; the food was of the usual character, consisting of hay, turnips, meal, and some stuff called "barley-dust," which latter, I found, was used by many other cow-keepers in the district, without

any ill effects. The cattle were, I found, turned out every day into the field adjoining the buildings; this field is undrained, but slopes towards one end, where it is a complete marsh, growing little else than rushes and fresh-water plants. The water gravitates here into a pond, at which all the cattle daily came to drink (the horses obtained their drinking water from another source). During the frost this pond was frozen, and a hole was dug a few yards off the pond, for the cattle to drink at. In this field, not far from the pond (the exact spot, however, I could not find, although we looked carefully for it), the foal that died the year before last was buried; the sheep that died the same year were buried in an adjoining field, on higher ground, which would also drain into this pond. Some of the water taken from the hole I brought away with me, and, in order to see if this was, as I suspected, the cause of the mischief, I fed a rabbit on bran (the same as used in my own stables) mixed entirely with this water. The experiment was commenced on Thursday, February 18th: the temperature of the rabbit was taken daily; there was no alteration till Saturday, February 20th, on which day it rose to 104° ; on Sunday morning the thermometer registered 105° , at night 105.2° ; and on Monday morning the animal was found dead. Microscopical examination of the blood revealed the presence of Anthrax bacilli in large numbers. In addition to this test-case, a small portion—about two ounces—of the spleen taken from the cow that died on the 10th February was given to our stable-cat to eat, with the result that he died in forty-eight hours afterwards; and in this case the blood was literally teeming with the bacilli. I mention this case particularly, because I notice that in most works on the subject it is stated that cats are almost insusceptible of this disease, and that it cannot be produced by ingesta. This is particularly mentioned in Crookshank's excellent work on Bacteriology (1886); Klein ("Micro-organisms and Disease," 1885) also states "that dogs and cats are infected with difficulty," and, further on, he remarks, "the ingestion of bacillar material is sometimes followed by Anthrax, but in these cases abrasions in the mucous membranes of the mouth, pharynx, or gut may have been the real entrance." Of course this may have been the case with my cat, but I could detect no appearance of anything of the kind, and am certainly inclined to the belief that he became infected by ingestion of the diseased spleen. I have, of course, given every instruction, and taken all the precautions possible, in order to arrest the spread of this disease on this particular farm. The field is to be thoroughly drained, and sown with salt and lime; the cattle have all been taken out of the byres and fold-yards, which have been thoroughly disinfected, etc.; but, while by these means we are enabled to limit the spread of the disease,

there is an utter want of information as to how the bacilli obtained access to this farm, or where they came from, unless we fall back upon Professor Williams's (to my mind, very unlikely) theory that the perfectly innocuous bacillus subtilus may, under certain circumstances, and in some unknown manner, develop into the virulent bacillus anthracis.

ON THE INTRA-TRACHEAL INJECTION OF MEDICINES.

BY J. C. JAMES, M.R.C.V.S., THORNBURY, GLOUCESTERSHIRE.

THIS method of treatment being somewhat new, and as yet not universally adopted, I write to give the result of my experience of the same.

During last autumn I operated in this way on about sixty calves with success.

In the months of September and October, "Husk" was very prevalent in my district, and a great many calves died from that affection. In ordinary cases I gave the medicines I usually prescribe for Husk, and these were given by the mouth. It was in the worst cases that I resorted to the injection of medicinal agents into the trachea.

At one farm, in particular, I was sent for to see twenty-five calves. A farrier had been treating them, and two had already died; seven more were lying about a shed, apparently in the last stage of the affection, and presenting the following symptoms:—Mouths open, tongues protruding, grunting loudly, and discharging a quantity of frothy saliva from the mouth; and, to complicate matters, the farrier had bled two of them.

I was told that something very mysterious was the matter with these animals.

After a careful examination, I told the owner that it was doubtful if any good could be done with those seven, as the disease was so far advanced. But it was left to my discretion to treat them as I chose. I then decided to inject the medicine into the trachea; but it was a tedious and trying operation, for I was afraid they would not bear it. However, we succeeded in giving the medicine without accident; and also succeeded in saving four out of the seven calves. These were submitted to a second injection in five days after the first. Two out of the three that died were the two that had been bled.

Several more calves, which were very bad, were selected from the herd, and operated on (the trachea) with success.

I am quite satisfied that no other treatment would have succeeded with those animals, which were in such a deplorable state, for in

former years I have tried every other method of treatment at that stage of the affection, and failed in permanently relieving them.

The sixty animals to which medicine was administered by tracheal injection during the last autumn were restored to health with one injection, and it was only in the case of those seven very bad ones that the second injection was necessary.

The medicinal agents used differed but little (only, perhaps, in doses) from those used by other gentlemen who have recorded their experience: viz., Ol. Tereb., chloroform, and acid carb.

The syringe and hollow needle used were made for me by Messrs. Arnold, about two years ago, and originally intended for the intravenous injection of medicaments.

HYPERTROPHY OF THE SPLEEN RESULTING FROM INTERMITTENT FEVER.

BY J. A. NUNN, M.R.C.V.S., A.V.D., GLASGOW.

THIS case came under my notice in India, while holding the appointment of Veterinary Surgeon to the Punjab Government. The animal, as far as could be ascertained, had been landed in Calcutta from Australia in the autumn of 1884, and had been taken to Simla, in the Himalayas, in April, 1885. The mare was there purchased by an officer of the 5th Bengal Cavalry, and taken by him into the Pishin Valley, beyond Quetta, in Beluchistan, a notoriously unhealthy locality, in the end of May or beginning of June. There, from the owner's account, she continually suffered from attacks of Intermittent Fever, and as the regiment marched in November to Mean Meer, near Lahore, she was sent on by train, being in a very emaciated state and poor condition, which was supposed by the owner to be due to bad and scanty forage. The animal was sent into the Veterinary School in Lahore sometime in the last week in November, suffering from an acute attack of Hepatitis and Jaundice, from which she succumbed in twenty-four hours after admission, in a state of violent delirium. The *post-mortem* examination was made almost at once, and presented the usual appearances; every tissue of the body, including the choroid plexus and meninges of the brain and spinal cord being tinged a deep orange hue. The remarkable feature of the case was the spleen, which was enormously enlarged, weighing $28\frac{1}{2}$ pounds. The capsule was thickened into a dense fibrous membrane, the spleen pulp was much diminished in quantity, and throughout the organ was a quantity of dense structure, seemingly as if the trabeculæ had become hypertrophied and developed into thick fibrous bands, diminishing the space between them, and, as it were,

crowding out the spleen pulp. The edges of the spleen were rounded and greatly thickened ; it contained but little blood, and, under the knife, cut with a tough, firm feeling.

THE ETIOLOGY OF MALIGNANT SORE-THROAT IN CATTLE.

BY RICHARD W. BURKE, M.R.C.V.S., A.V.D., CAWNPORE.

FOR some time past the subject placed at the head of this article has engrossed a good deal of attention in India, especially among army veterinarians. It is one of those subjects which present themselves to the veterinarian in many different phases, and its discussion usually calls out an extraordinary diversity of views. The subject calls for absolute facts, and we merely call attention to the facts which confront us. In a recent inquiry into the etiology of Malignant Sore-Throat in transport bullocks at Allahabad, we have shown that the disease is a general infectious malady, as proved by its general character as well as mycological studies ; but is the general disease primary or secondary ? The microbe of the œdematous disease is not yet sufficiently known, being different, both in its physical and vital characters, as we have found, from the germ of the disease well known as Anthrax, with which it has been confounded, and causing painful inflammatory Œdema when injected subcutaneously in a healthy ox ; the tumour containing numbers of specific microbes, without any being traceable in the blood or in the secretions of the body, although a most careful microscopic examination was made of the fluids during different stages of the disorder. The affection is always attended with more or less fever, which is, moreover, seldom so high as that reached in Anthrax proper. The identity of Malignant Sore-Throat in the ox with Anthrax, considered probable, is not established.

What is, then, the pathology of the disease ? Is it allied to Anthrax ? If not, what are the differences ? The points of difference are many and important ; and we regard a consideration of this view of the question as an absolute necessity to any broad and correct settlement of the subject.

I have recently reported a most favourable issue of the outbreak of Malignant Sore-Throat in cattle I was requested to investigate at Allahabad, as not one case of death was witnessed, which struck me as being contrary to the experience of outbreaks of Anthrax proper. I believe if these so-called cases of Malignant Sore-Throat were early attended to in all outbreaks, we should not find the mortality nearly so great as that recorded in many

former outbreaks. If the swellings about the throat are early treated, no ill-results need be apprehended ; for, I imagine, death occurs only as the result of suffocation.

I have since worked with the blood, salivary discharges, and serosity from the tumefactions about the throat, which I had brought up with me, in separate tubes, from Allahabad. So far, I can find no bacilli in the blood, usually present in such large numbers in cases of Anthrax. I am, therefore, inclined to doubt the connection of Anthrax and Malignant Sore-Throat of cattle, as claimed by many leading authorities. A bacillus, however, has been witnessed by me in the serous fluid removed from the tumours of the throat, which, in morphological characters at least, appears identical with the bacillus of Malignant Œdema described by Dr. Koch—namely, the *bacillus œdematis*.

The principal symptoms noted, in fifty-six cases treated in the last outbreak, were—swelling of the throat, base of ears, and dewlap ; cough ; and fever, the average temperature being found to range between 104° and 105° F., which, for cattle, is not very high. In several cases the breathing was rendered extremely difficult, and suffocation was threatened, owing to swelling of the base of tongue and pharynx. This was relieved by early fomentation, and, in some cases, blisters to the throat.

Whatever other causes may contribute to this disorder, it is nearly certain that it is not the one producing Anthrax. The poison of Malignant Sore-Throat differs entirely from that of Anthrax, as has been fully proved by the unerring test of inoculation ; these diseases not being capable of reproducing each other under any circumstances.

I trust that the cases I have reported * may suffice to show that, by early treatment of throat lesions, a class of cases hitherto found most intractable, and extremely fatal when left alone to chance, is capable of being very satisfactorily dealt with. Of course it is hopeless to imagine that so many cases of the kind will be found to recover in all outbreaks as those I have described, since there must of necessity be shown early attention to the swellings of the throat, the need of which is seldom understood by cattle-owners in India, which may materially interfere with the desired results. If, moreover, the veterinary surgeon, and still more the salootrie or native subordinate, cannot obtain the consent of certain cattle-owners in the country, and enforce the treatment which is essential, failure and great mortality will almost necessarily follow, I am convinced, from my experience of native cattle-owners in India,

* Reports Nos. 552 and 553 D, 16th and 18th January, 1886, to the Inspecting Veterinary Surgeon, 2nd Circle, Bengal.

who have no experience of looking after their cattle in health, entirely mismanage them during disease, giving practically no relief to the throat symptoms, and, as a matter of course, suffocation in bad cases could not be avoided.

HELLEBORE POISONING.

BY J. BRODIE GRESSWELL, OF LOUTH, AUTHOR OF THE "MANUAL OF EQUINE MEDICINE."

WHILE we may be consoling ourselves with the fact that poisoning by arsenic, antimony, and mercury is far less common among horses than it was some few years ago, it is very disheartening to find, from experience, that vegetable toxic agents are more largely administered than ever to the animals to whom man owes such a debt of gratitude. To what can we attribute such wanton, wilful ignorance, such gross cruelty, such ingratitude? To superstition, to quackery, and to carelessness of consequences, we reply. Poisoning by aconite is on the increase in many parts, and more than counterbalances the diminution of cases of poisoning by arsenic.

It is not, however, our purpose to-day to enter into details concerning aconite-poisoning in horses. It is too well known to need repetition. To-day it is my intention merely to describe a case of marked hellebore-poisoning which would have proved rapidly fatal had professional advice not been obtained.

On March 6th, I was summoned to a heavy draught horse, said to be choking. The symptoms observed by the owner had supervened three hours after the administration of a ball containing a large quantity of hellebore (*Veratrum album*).

It is, perhaps, almost needless to add that on my arrival nothing whatever was told me concerning the ball, which had been given with the view of curing the Grease from which the horse was suffering. This had to be elicited by close cross-questioning, by which it was discovered that the balls had been procured from a duly-qualified chemist.

I found the animal retching continually, but there was no actual vomition. The pulse was very irregular and feeble, and numbered eighty-six beats in the minute. The respirations were 68. The symptoms had been gradually becoming more severe, until, when death seemed imminent, my advice was sought. Three ounces of whisky, with three ounces of solution of carbonate of ammonia, were ordered to be given every hour for six times, and then every two hours. In twelve hours' time the animal began to improve. On the following day he was much better, and tonics were substituted for the stimulants. The horse then rapidly recovered, and

to-day (March 8th) is perfectly well. It is noteworthy that in some old "*popular*" works on the veterinary art overdoses of white hellebore are recommended for the treatment of certain complaints, and it is unfortunate that, as yet, there is no thorough popular work on the diseases of the horse which, while teaching horse-owners the ordinary facts concerning simple diseases and simple remedies, can in any degree be said to be reliable. The populace must have some knowledge of the veterinary art before its value can be thoroughly and fully appreciated.

Especially is there a need that the simple diseases of the horse should be popularly treated of, as the so-called knowledge of them is in reality no knowledge at all, but the grossest ignorance. This is not true, however, with regard to the science and art of equine surgery, as there is no doubt that the general run of intelligence in this subject is far greater than in equine medicine.

APPLICATION OF THE CHORION OF EGG IN EXCORIATIONS, WOUNDS, AND ULCERS.

BY MAX KETTRITZ, V.S., ROYAL BREEDING ESTABLISHMENT,
GNESEN, PRUSSIA.

THE chorion of the egg, which was mentioned several decennaries ago by a certain Dr. Heussner, and which has been applied to wounds of the lips with the greatest success, is, therefore, not a new application, but one which has been resorted to by several surgeons. During the manœuvres of last year, I perceived that this fine cuticle was known as a household remedy in the "*Wendland*," in Hanover. I became acquainted with this remedy through a physician who had applied it to a patient who had a wound on the foot, for which they had already used ice fomentations and an ointment of Ungt. plumbi. This physician assured me that the pain ceased on the very next day after the application of the egg-skin had been made. Since that time I have applied this egg-skin continually in recent and superficial wounds, which would be likely to heal with the first intention, and even in old wounds, where supuration had commenced, and where other dressings would not adhere.

This membrane can be applied also in superficial ulcers, especially in those in which the healing process is far advanced and where nothing is wanted save the closing of the wound and the necessary skin reparation; finally, in all excoriations where the epidermis, or also a part of the corium, is lost, I have observed the best cure results in the wounds of the eyelids, which occur

most frequently in military horses. A moderate degree of inflammation does not justify the application of this cuticle.

This cuticle, which appears on the internal surface of the egg-shell, takes the place of the lost integument; it attaches itself hermetically to the wound-surface and protects it from the action of the air, as well as from every other irritating influence, and it hinders the development of bacteriæ.

In applying the membrane, the moist surface—that which is next to the white of the egg—should be placed upon the wound, and pressure uniformly applied over the wound-surface. As soon as it has become dry, it adheres very intimately, and no bandage is required to keep it in position. The membrane should not be removed or disturbed until it comes away of itself.

NOTES ON THE BRITISH PHARMACOPŒIA, 1885.

BY "PHARMACON."

(Continued from page 91.)

Liquor Ferri Dialysatus, of which much has been heard lately in veterinary periodicals, is now officially recognised, and contains 5 per cent. of ferric oxide. In other quarters the therapeutic value of this preparation has been as freely questioned as it has been lauded in veterinary circles, and I am by no means sure that the advocates of dialysed iron are more correct than those who condemn its use. Its value as an antidote in arsenical poisoning may, perhaps, be its great recommendation.

Liquor Sodii Ethylatio.—Ethylate of Sodium is said to be the most manageable of all caustics, and to cause little or no pain.

Oleates.—This class of preparations is new to the Pharmacopœia, but from their extended use their introduction was to be expected. It may now be possible to obtain a uniform preparation, as hitherto it has been difficult to get two samples of Hyd. Oleas alike from two different sources. Oleate of Mercury (10 per cent.) and Oleate of Zinc are the only two officinal.

Opium.—This valuable agent is now standardised, and must contain 10 per cent. of morphine. It is of the highest possible importance that this drug should be of uniform strength, and prescribers will welcome this restriction. Manufacturers say this standard is ridiculously low, and regret the percentage has not been placed at 10 to 12 per cent. That there is plenty of good opium containing more than the 10 per cent. morphine I am ready to believe; but as a prescriber of medicine it has been my lot to have opium far below the recognised standard, but never have I

had to use opium containing *too much* morphine. As far as veterinary practice is concerned, I think the percentage might have been advantageously stated as 10 to 12 per cent.

Paraffina.—Two paraffins are now officinal—Paraffinum durum and Paraffinum molle. The first, or hard paraffin, has a higher melting-point than the soft, and is known in trade as paraffin wax.

The second or soft variety is what we are familiar with as vaseline, etc.

Physostigma, or Calabar Bean.—The alkaloid of this drug (Physostigmina) which has been prominently before the profession for several months past, is now officinal. There is also the extract of Calabar bean, which is a very useful preparation for internal administration, and a useful and reliable hypodermic injection can be made from it.

Staphisagriæ Semina.—Stavesacre is now officinal, as also is an ointment of the seeds.

Tinctures.—We have some slight alterations, and five additions to this class of preparations, viz., Tr. Chlorof. et Morph., Tr. Cimicifuga, Gelsemin, Jaborandi, and Podophyl.

The only ones worth noticing are :—

Tinctura Chloroformi et Morphinæ.—This is made to represent “Chlorodyne,” but is not a good imitation of that nostrum. It separates, and is much too weak in morphine for veterinary use, only containing one grain to the ounce.

The following formula by Martindale is a better preparation, and more suitable for our practice :—Take Chloroform, ʒij. ; Rectified Spirit, ʒij. (Methylated is equally good); Treacle, ʒiv. ; Liquid Extract Liquorice, ʒiss. ; Hydrochlorate of Morphine, 40 grains; Sulphate of Atropine, 1 grain; Oil of Peppermint, 8 minims; B. P. Hydrocyanic Acid, 160 minims; Tragacanth in Powder, 20 grains; Distilled water, q. s. to ʒx. Rub the morphine, atropine, and tragacanth with the liquid extract of liquorice, and transfer to a bottle. To the spirit add the chloroform and oil of mint. Mix this gradually with the morphine solution, then add the remaining ingredients and shake well.

For all practical purposes one fluid ounce of this preparation may be said to contain—Chloroform, ʒiss. ; Morphine, 4 grains; Atropine Sulph., $\frac{1}{10}$ grain; Ac. Hydrocyan., B. P., 16 minims.

Tinctura Nucis Vomicae is now made from the extract, and for practical purposes may be said to contain 6 grains of extract or 1 grain alkaloids in 1 fluid ounce.

Tinctura Opii, made from standardised opium, and contains the soluble matter of 33 grains of opium, equal to 3.3 grains morphine in each ounce.

Ointments.—Several of the old ointments have their bases

changed by substituting paraffins for lard, which are said to enhance their keeping qualities. The paraffins have frequently been accused of causing irritation of the skin, and it is to be hoped the Pharmacopœia Committee have been well advised in making this change.

In my own practice, I prefer fresh lard for delicate skins, to most of the soft paraffins that I have seen, especially that sold as veterinary vaseline.

The following new ointments are introduced :—Carbolic Acid, Salicylic Acid, Calamine, Crysaxobin, Eucalyptus, Dilute Mercury, Nitrate Iodiform, Stavesacre, and Oleate of Zinc.

Sulpho-Carbolate of Zinc is now officinal.

Omissions.—The following drugs and preparations, officinal in the 1867 Pharmacopœia, are now rejected :—*Areca Digitalinum*, *Ferri Iodidum*, *Hydrargri Iodidum Biride*, *Liquor Atropiæ*, *Sodæ Acetas*, *Syrupus Rhamni*.

The present pharmacopœia, although containing several imperfections which have been freely canvassed by pharmacists, is admitted on all sides to be a great improvement on its predecessors.

For the veterinary practitioner, however, it fails in many essential points ; but these we will leave for the present, trusting to return to the subject in the early future.

NOTES ON NEW VETERINARY REMEDIES.

BY JOHN DOWLING ALLMAN, ASSOCIATE OF THE PHARMACEUTICAL SOCIETY (LOND.)

Naphthol.—This agent, which is recommended by Professor Walley as an effective remedy in various skin diseases (VETERINARY JOURNAL, Vol. xxii., page 120), is one of the products of coal tar. It appears in white, shining, laminar crystals—soluble in alcohol, chloroform, ether, and benzine, sparingly soluble in hot water, but soluble in olive oil and lard, about 1 in 8. It has been employed with some success in medical practice as an application in some of the intractable forms of Tinea Tonsurans, more especially those cases complicated with Eczema ; and it has also proved of service in Scabies and Eczema, as it seems to kill the parasite and cures the Eczema. It has generally been applied in the form of an ointment—10 or 15 per cent. Professor Walley did not mention what strength he used the naphthol, but I can commend the following as a good, serviceable ointment for general veterinary use :—

Napthol...	...	...	...	...	...	...	...	15
Lard	...	...	...	...	...	...	...	100
Green Soap	...	...	...	...	...	...	...	50
Prepared Chalk	...	...	...	...	...	...	...	10

Misce secundum artem, et fiat ungt.

It can be used with some success as an all-round antiseptic and parasitic ointment, and should become a favourite in veterinary practice.

Liquor Aluminiumi Acetici.—This preparation, which is officinal in the German Pharmacopœia, might be introduced into veterinary practice as a general astringent and antiseptic lotion. The following is the officinal formula (Ph. Ger.):—

Sulphate of Alumina	...	...	...	...	...	...	300
Acid, Acetic	...	...	...	...	...	...	386
Precip. Carb. of Lime	...	...	...	...	...	...	130
Water	...	...	...	...	...	...	1,000

Dissolve the alum in 800 parts of water, add the acetic acid, and, while constantly shaking, pour in by degrees the carbonate of lime mixed with 200 parts of water; set aside for twenty-four hours in a warm place, shake frequently, then decant; press the sediment, and filter the solution. Contains $7\frac{1}{2}$ to 8 per cent. of sub-acetate of aluminium. Judging from the ingredients, it should make a very useful antiseptic and astringent lotion. It would answer very well for red raw surfaces, prevent microbes forming in the wound, heal the weeping, allay the accompanying irritation, and effect a speedy cure. Gauze or tow, impregnated with a 10 per cent. solution, should form a nice application for open joints. From a pharmaceutical and therapeutic point, I can commend this as a general veterinary lotion.

RHEUMATOID ARTHRITIS.

BY T. L. GOOCH, M.R.C.V.S., STAMFORD.

ON Wednesday evening, March 3rd, I was summoned to see the young bull "Telemachus XX," seven months old, and was informed by the messenger that he was down and could not get up.

Upon arriving, and before examining the bull, I questioned the herdsman as to when he first noticed anything wrong, and he told me that "the bull appeared apparently healthy until the previous evening, when, on being led to his mother to suck, he noticed him walking rather stiff; next morning, he was again led to his mother, when he walked much worse than on the previous evening, and he refused to suck; during the morning he lay down, and when seen at noon, he was unable to rise."

I then examined the animal, and found the pulse 62, internal temperature and respiration normal, but a cold sweat bedewed his

body; nose very dry, extremities warm. Upon examining his limbs, I found both hock-joints much swollen and very hot; I then, with the assistance of the herdsman, lifted him up, but found he could not stand.

I diagnosed it as a case of Rheumatoid Arthritis, and he being in a cold stall, I had him removed to a warm loose-box, ordered fomentations to the hocks, and afterwards to be rubbed with a stimulating liniment; gave a mild purgative, in which was dissolved one drachm of salicylic acid.

About 8.30 o'clock a.m. of the 4th., I again saw the bull; found the pulse 60, temperature 103.2° , respiration normal, extremities warm, visible mucous membranes injected and slightly tinged yellow; but, upon examining the hocks, I discovered the off one in an extraordinary condition—the skin was severed at the posterior part of the hock for about four inches, the point of the os calcis protruded through the laceration, and the gastrocnemii tendons were ruptured. Thinking that the bull had been struggling about in pain, I examined the box to see if I could find anything with which he could have injured himself, but could detect nothing. I therefore concluded that the tendons must have been ruptured before, and that during the animal's attempts to rise the os calcis had forced itself through the skin.

I considered the case hopeless, and, as the calf was fat, advised slaughter; but, as the calf did not appear to suffer to any great extent, he was allowed to live until the following morning (Friday), when I again saw him, and ordered the herdsman to take him to the butcher's to be killed.

I had an opportunity of making a *post-mortem* examination, which revealed the following condition—immediately under the skin, for about six inches above and below the hock-joint, was a yellow, gelatinous fluid; the gastrocnemii tendons, in *both* hocks, were ruptured just above the point of the os calcis; blood had extravasated around the joints, and between the muscles in the areolar tissue as far up as the stifle-joint. The true hock-joint was then opened, and it was found that caries of the articular surfaces had taken place, both at the inferior extremity of the tibia and the superior surface of the Astragalus. The other joints of the limbs were perfectly healthy.

Such extraordinary conditions presenting themselves in so short a period, without any sign of disease being previously noticed, I have not met with before.

Thinking that the case might be interesting to some readers of your valuable journal, induced me to give a brief account of it.

I have treated two cases of Rheumatoid Arthritis previously on the same farm, during 1885-6.

EXCISION OF THE TONGUE, AND PERONEO-PREPHALANGEAL TENOTOMY.

BY F. RAYMOND, F.R.C.V.S., A.V.D., WOOLWICH.

Two operations recently performed in the Royal Horse Infirmary, Woolwich, may be of interest to the readers of the VETERINARY JOURNAL.

Case I.—Excision of anterior half of an indurated tongue in a horse. The patient was admitted on the 13th February with its tongue protruding on the near side. The tongue was considerably enlarged, cold, hard, devoid of sensibility, and of reddish-brown colour externally. The epithelium of the dorsum was partly stripped off by the action of the teeth. The angle of the mouth showed a large scar, which travelled from the angle under the jaw for about three inches. The mouth was opened and a depression found across the dorsum about three-quarters of an inch wide, situated above the frænum. The injury had evidently been caused by a rope placed round the lower jaw and tongue and tightened, probably by the animal hanging back when tied up at a fair. Part of the ventral surface, about two inches from the frænum, was sensitive; but it was decided to include that part in the amputation, so as to obtain a better stump. No obstinate hæmorrhage was anticipated (although all necessary precautions were taken to meet such an occurrence), as in two similar cases, where a large part of the tongue had been torn out; and no great difficulty was found in stopping the bleeding.

A gag was introduced into the mouth, the parts well cleansed with solution of pure carbolic acid. A clean cut was made just behind the depression spoken of before, and the diseased and small healthy ventral portion removed. Two strong jets of blood spirted out from the stump, to which a pledget of tow, steeped in solution of pure carbolic acid, was applied. The horse, by moving the lingual muscles, drew the blood-vessels into the stump, which speedily acquired an inverted appearance. A clot formed, and hæmorrhage ceased. Altogether the patient lost about half a pint of blood; he suffered no reaction, no febrile symptoms. He was put on the pillar-chains for two days and fed on slops only; afterwards on thick oatmeal, then crushed corn, and so on.

On the 22nd February he was discharged cured, as far as the operation was concerned, but is still suffering from paralytic symptoms of the lower lip, which are, however, diminishing, owing to the tremendous pressure it suffered from the rope.

Case II.—Peroneo-prephalangeal tenotomy. A horse, about sixteen years of age, belonging to the Royal Artillery Dépôt, had

suffered from Stringhalt for at least five years. His off hind-leg was jerked nearly to his abdomen when at a trot.

It was determined to try the effect of the above operation, which is spoken of highly by some practitioners. The operation, a very simple one, is admirably described in Fleming's "Operative Veterinary Surgery," Part I., to which my readers are referred. On rising from the bed of straw, the animal was still lame, but much relieved, and has since gradually improved in his gait, though still lame. He still walks very much as he did before the operation, but in trotting shows a vast improvement.

I doubt if he will entirely recover, because the nerves supplying the peronæus are connected with those supplying other muscles, which are also slightly implicated; the age of the horse is also against him as well as the long-standing of the disease.

In younger horses the operation may be followed with good results in some cases. It may be worth attempting it as a remedy when the patient walks nearly sound and trots very lame, showing that the peroneus is principally affected.

ON RELAPSING FEVER OF EQUINES.

BY J. H. STEEL, M.R.C.V.S., ARMY VETERINARY DEPARTMENT, BOMBAY.

(Continued from page 174.)

These cases excellently illustrate the chronic disease. A 5 died 127 days after he was brought on the sick list, and A 16 after 58 days of recognized disease.

I had some natural cases which I seem to have brought under treatment much sooner after invasion.

In other cases I was simply "in at the death." Thus I saw the last relapse in C 130, and the deaths of B 70 and C 149.

The relations of the parasites to the phases of fever need careful examination of my notes to arrive at accurate conclusions. The following matters must be taken into consideration:—

(a) In my earlier manipulations I was inexperienced in detection of the parasites, so my records of their absence must be accepted with reserve.

(b) There is always the possibility that the specimens of blood taken from any animal may not have detectable parasites, although many are in the animal at the time.

(c) My stainings make it probable that blood in which parasites are not detectable by means of the microscope is simply blood in which the parasites are non-motile *pro tem*. This view will, better than the theory of spores, explain how it is that the subcutaneous injection of blood from affected animals, but *apparently* devoid of parasites, generates the disease, but after somewhat prolonged incubation—*vide* case of Mule 17.

(*d*) In my daily records I adopted the expressions concerning the parasites, "very numerous and active," "fairly numerous and active," "numerous," "present," etc. They, of course, are lacking in scientific accuracy, yet they are practically useful as records of my impressions from the specimens examined by me.

(*e*) A little allowance must be made in an inquiry of this kind for variations in light available for stable clinical work, for individual variations of different days as to fitness for work and for other little points familiar to the microscope worker.

Making due allowance for these matters, I conclude :—

1. That parasites are more numerous and active in the blood when the temperature readings are highest.

2. That they are more often seen at the high temperature readings than at the low.

3. That they are more often found during the rise and oscillations at the curve than during the fall.

4. That they are seldom seen during the intervals of no (or slight) fever between the relapses.

5. That each fall in temperature is *generally* associated with disappearance of detectable parasites from the blood.

6. That in carefully-observed cases the parasites will be found non-detectable just before the crisis, and they reappear generally just before the rise.

7. That the introduction of parasites into the system is generally associated with some disturbance of temperature ; an evanescent rise or fall.

8. That these special parasites are detectable in every case of the disease.

An exaggeration of diurnal range of internal temperature is characteristic of this disease. Thus the evening tracing is in the main parallel to the morning—the critical fall seems later and more abrupt. Occasionally the morning and evening temperatures are practically the same, when the parasites are very numerous and active in the blood. As the evening curve is some 4°—5° higher than the morning, we get some rather high readings in the evening ; however, so great a difference is, of course, not seen when the morning temperature rises over 104°.

The following, as being the characteristics of the disease, are available for comparative study :—

(*a*) The fever, as indicated by the temperature curve ; its incubation, invasion, intervals, relapses, severity, and duration.

(*b*) The blood changes, non-parasitic and parasitic ; the pathogenic and histological characteristics of the organisms.

(*c*) The general symptoms of the disease.

(*d*) Its prognosis, etiology, and varieties.

We will now examine cases of this disease as induced in the dog and monkey.

Phenomenon of the induced disease in the Dog.—The patient was a young

puppy, in good health, spirits, and condition, with normal temperature ranging from 101° — 103.5° . On 12th January he received some parasite-containing blood freshly drawn, without air contact, from the jugular of a mule. This was thrown into the subcutaneous tissue of one thigh, which became temporarily swollen and painful. The patient was constantly fed to repletion with flesh from mules which had succumbed to the disease. He was first thus fed on the day after inoculation. The first appreciable disturbance of temperature was a rise of 1° above the normal on 7th day and again on 9th day, after which the temperature fell to 101° on 11th day (evening). On 12th day parasites were first detected in the blood, and the temperature rose 3° to 104° , and on the next day to 105° ; after a fall to 102° another rise to 105° took place, and then a fall to 103° . A small two days' curve then occurs; the parasites were present until just the crisis of this rise, but disappeared during the fall. Thus the invasion stage is completed.

(c) On 20th—22nd days occurs the *first interval*.

(d) The *first relapse* with three curves lasted 9 days.

(e) An *interval* of 4 days ensued.

(f) A *second relapse*, lasting 11 days, followed; the readings then began to fall, and, without an interval,

(g) The final or *fatal relapse* occurred—it was disorderly in some of its phenomena.

On the sixteenth day the puppy was noted as heavy, very dull, having a slight cough, and showing pain (as the mules used to do) when pressed over the loins. It was noted that when the parasites were absent (?) from the blood the red corpuscles became at first very crenulate and shrivelled. The visible mucous membranes were always very pale, and the animal weak and thin, in spite of an excellent appetite. Towards the middle of February, the puppy developed a swelling on each side of the face, also over the left inguinal gland. He screamed with pain when lifted, and was very dull and feverish. The swellings of the head increased rapidly. On 1st March, swelling of the muzzle, throat, and perinæum set in, then the dog rallied a little. However, on the 4th March, he is reported as having been "very cold, and hind quarters much swollen." He got down, and could not rise again, and died at 7 p.m. on 51st day after inoculation, in a state of extreme emaciation. I was absent at Moulmain at this time, so could only make a *post-mortem* examination after three days, when the carcase was so decomposed that I could examine only the stomach, and that imperfectly. I could not detect any signs of ulceration of its coats. Dr. Evans also induced the disease in a dog. The symptoms in my case were remarkably like those shown by the mules, *i.e.*, periodic relapsing fever, progressive anæmia, and apparent, not real, paralysis of the hind limbs. In the dog case, however, there were no petechiæ detected on the membranes, the swelling of the lymphatic glands was very marked, and gastric ulceration was probably absent. There is an element of doubt as to whether this animal suffered from ingestion of spirilloid-bearing flesh or from the subcutaneous injection

of parasite-laden fresh blood ; probably she was affected by both. Incubation seems to have lasted for the unusually long period of 11 days, and parasites were not detected until so late as the twelfth day.

The temperature curve in the dog shows, with a fair degree of distinctness, the phases of the disease. The period of incubation occupied 11 days—a long period—during which the temperature did not rise over 104° , and no parasites were detected in the blood. The invasion stage was not characterised by high fever, but the parasites persisted throughout until the final fall. They were but a short time absent from the blood, or rather non-detectable in it, and their redetectability preceded the first relapse. This relapse was more severe than the invasion, the parasites were persistent throughout, and very numerous and active, and when they disappeared the temperature still remained very high. No observations of parasites were made during the second relapse, except that they were proved absent during the last three days of the fall. A period of *ante-mortem* confusion of temperature, associated with reappearance of the parasites, preceded death, before which the animal became very cold. We may conclude :—

- (a) The induced disease in the dog has a well-marked relapsing character.
- (b) Its period of invasion is prolonged. Its duration extended to 51 days.
- (c) The parasites are very numerous and active in dog's blood.
- (d) The symptoms shown closely resemble those of the mule in chronic cases.
- (e) No petechiæ have been detected on the visible mucous membranes.
- (f) The disease proved fatal also to the dog.

Dr. Carter did not succeed in conveying Human Relapsing Fever to dogs.

It seemed to me that the parasites of the dog are smaller than those of the mule generally are. Some move but slowly, others very actively. I noted one which had devoted his attention specially to four corpuscles which began to look shrivelled (in consequence?). He charged at them again and again, not taking notice of, and dragging them about, as a mule parasite would have done, but worrying them, and lashing them with his tail when they happened to get in his way, and all the while wriggling most actively, and rendering his shape most difficult to determine, because of the constant running along his body of an undula. Parasites transferred from dog's to goat's blood did not, apparently, fasten to the small red corpuscles of the latter and drag them about, but moved among them, whereas in blood of the mule they at once tackled the corpuscles of the latter, but seemed weak and feeble. They appeared to bore the corpuscles spirally ; in one case the spiral movement was noted as " very plain."

Phenomena of the induced disease in the Monkey.—"Jacko," a young female monkey of the ordinary Burmese species, received one syringeful of blood containing numerous and active parasites taken from a mule affected with the artificially-induced disorder. This was injected inside the thigh into the subcutaneous areolar tissue. The patient scratched the seat of puncture for some time after injection. On the second day, the limb was a

little swollen at the seat of inoculation. On the third day after inoculation the blood teemed with active parasites. There was a reddish discharge from the generative orifice. On the next day the red corpuscles were noted as much shrivelled. The animal suffered periodically from fever, and became very emaciated, the face having a haggard, "drawn" appearance, and the gums covered with sordes. This animal travelled with me by sea from Rangoon, and during the passage had a very severe attack of fever, could eat little, and was very weak and bad-tempered to every one but myself. She was very much exhausted on arrival at Madras, but was very much excited and angry with the coolies. Her appetite was very capricious. During a stay of 26 days at Bangalore she had two relapses of fever. She was much exhausted during a journey thence to Kirkee, but at the latter place revived somewhat. Œdema of the feet set in about the twelfth week after inoculation, followed by progressive ulceration. Shortly before death the upper eyelids became œdematous, and the fatal result was preceded by unconsciousness for a few hours. The case lasted about three months, but my *exact* records of it were continued only for 32 days. An examination of the tracing appended will at once show how in this case the fever ran its typical course with invasion (after a very short incubation), relapses, intervals, and fatal result. The parasites were present during the fever, and absent during the intervals. The symptoms were similar to those shown by the mules in the naturally acquired chronic disease. *Autopsy* showed only the lesions of anæmia, slight petechiation of lungs; no ulceration of gastric mucous membrane. Thus it is clear that the induced disease of the monkey is a very close reproduction, in every respect, of that brought about naturally in mules and other equines. We must compare this case with those of Dr. Carter, of "acquired Spirillum Fever in the monkey." The latter resulted from inoculation with fresh spirillum blood from man on the monkey; they were 73 per cent. of the cases experimented with. The febrile attack was almost always a simple one, or with but slight apparent recurrence in one-eighth of the cases; passing material through the body of the monkey seemed to increase its virulence. The period of incubation was over three and under four days, and consisted of two stages, non-spirillar and spirillar. It was noted, with regard to the invasion, that it varied much in duration in different cases (from 6 hours to 4 days) and thus resembled the relapses of the human prototype rather than the invasion attack. The monkey suffers, proportionately to his bulk, more than an adult man. The maximum intensity of pyrexia was about equal to that of man, therefore the rise was less above the normal. Critical sweating, acmal and epicritical phenomena, were not noted in the monkey. There was a sharp rebound which proved fatal in about 25 per cent. A second inoculation took as well as a first; secondary fever occurred as in man. In only two cases did relapse occur, and they were mild; in man one-fourth of the cases are non-recurrent. The general symptoms in Dr. Carter's cases resembled those shown by "Jacko" during his earlier relapses. No

local inflammations followed the injection. *Autopsies* showed liver and spleen congested ; congestion, with petechiæ, of gastric mucous membrane, and sometimes of that of the intestinal tract ; pulmonary apoplexy ; petechiæ on the lungs ; brain pallid ; no cerebral Meningitis ; Pneumonia ; marked parenchymatous inflammations ; fatty degenerations or infarcts of liver, spleen, and kidney.

Thus "Jacko" differed from Dr. Carter's monkeys in a number of important respects :—

(1) His febrile attacks were numerous.

(2) They *ultimately* proved fatal, whereas in Dr. Carter's cases the death seems to have resulted from the *acute* disease.

(3) Local phenomena were present at the seat of inoculation of "Jacko."

(4) The period of incubation was very short and not divided into spirillar and non-spirillar portions.

(5) The maximum intensity of fever was greater in the monkey suffering from the equine than in those with the human disease.

The absence of all definite *post-mortem* lesions in "Jacko" must not be contrasted with those found in Dr. Carter's monkey, for the latter were acute and the former was a chronic case.

The lesions shown in the latter cases are those common to acute Relapsing Fever.

By comparing the cases of mules, ponies, dogs, and monkeys, (*a*) we may arrive at the general characters of the equine disease, and (*b*) determine how much it is possible for the same disease to be influenced in its manifestations by the species of the affected animal. (See Table, next page.)

Thus we learn that Equine Relapsing Fever, in so far as our experience goes, always follows inoculation of dog, pony, monkey, or mule with blood obtained directly from the affected animal without air-contact ; that not infrequently swelling occurs at the seat of inoculation ; that at a varying time after the experiment the temperature begins to rise, and spirilloid organisms appear in the blood, and the animal suffers from fever for a period averaging seven days, during which the temperature rises to 4° above the normal. It falls to normal when parasites are no longer detectable in the blood. In no case is the crisis of the fever associated with profuse perspiration or other critical evacuation, and in no case was a rebound noticed. After an interval of some three days, the first relapse supervenes ; the fever is not generally so great as at the invasion, and it does not generally last so long. A rebound sometimes occurs after this phase ; the temperature generally regains the normal.

After a second interval, which varies considerably in duration, the second relapse occurs ; it varies much in height of rise, duration, and severity, and always is followed by a rebound. Subsequently we find that, until the disease proves fatal, relapses occur, less defined than the earlier ones, the temperature regains the normal, or may fall below or remain above it during the interval, and the swellings assume the "cat's tooth," or three-cusped characters. Death in chronic cases results from exhaustion.

Characters of the Disease.	Disease in the Mule.	Disease in the Pony.	Disease in the Dog.	Disease in the Monkey.	Disease in General.
Fever as shown by Int. Temp. rise.	.....	.....	.....	.....	Invariably followed in inoculation of these animals, and is relapsing.
Local lesions	.....	Present at seat of inoculation.	.....	Present at seat of inoculation.	.....
Incubation..	Prolonged in cases of gastric indigestion and when blood not containing appreciable spirillids is used (4—7 days).	Brief—4 dys.	Long—11 dys.	Very brief—2 days.	Varies from 2 to 7 days (on average).
Invasion; duration ...	5—11 days.	8 or 9 days.	8 days.	5 days.	5—11 days.
Height of Fever ...	102°—105° Generally 5° above normal	103° +4°	105° +3°	106° +4°	Varies. Do.
Depth of Fall	99° = normal.	99° = normal.	103° = normal.	98·5° = -2·5°	Generally to normal. Nil.
Rebound ...	.....	.....	.....	.....
1st Interval; durn. ...	2—3 days.	2—3 days.	3 days.	3 days.	3 days.
1st Relapse; durn. ...	5—7 days.	4 days.	9 days.	5 days.	Varies.
Height ...	103° to 106° =4° to 7°	102° = +3°	106° = +3°	107° = +7°	Varies.
Depth of Fall	99° = normal.	99° = normal.	104° = +1°	99° = -2°	Varies.
Rebound ...	Nil.	Nil.	Nil.	Marked.	.....
2nd Interval	2 days.	Nil.	4 days.	2 days.	.....
2nd Relapse	8 days, about.	Fatal.	11 days.	6 days.	.....
Height ...	102° = +3°	102° = +3°	105° = +2°	106·5° = +5·5°	.....
Depth of Fall	.....	.....	.....	.....	Below normal —1°.
Rebound ...	.....	.....	.....	.....	Present.
3rd Relapse	Present.	.....	Present.	Present.	Present.
Further Relapses ...	Present. Fatal.	.....	Fatal.	Present. Fatal.	.....

Equine Relapsing Fever varies in different species in the following respects :—

- (a) Local lesions may or may not occur at the seat of inoculation.
- (b) The incubation period is from two to seven days, in accordance with the nature of the virus, the conditions and species of the subject, etc.
- (c) The duration and height of fever in the various phases varies ;
- (d) As also does the depth of fall and degree of rebound, if any ;
- (e) As also does the frequency of relapse ;
- (f) And the cause of fatality.

Thus we must not take it as a proof that because no local lesions occur at the seat of inoculation, nor because the incubation is prolonged, nor because the temperature tracing of Human Relapsing Fever is not similar to that of equines, that the two diseases are not the same. They are both Relapsing Fevers, and the same Relapsing Fever may vary in these respects in different subjects under different methods of conveyance. A comparison of the human disease in man with that in the monkey, shows that it presents the following general characters :—

1. It does not invariably follow inoculation. I am not inclined to lay stress on this difference from my results with equines, because I believe my plan of injecting blood immediately from the jugular was specially calculated to secure a successful result. Attempts to communicate it to dogs failed.
2. Inoculation does not cause local lesions. I am inclined to think this of importance, and in direct association with the greater vigour and lethal influence of the parasite in the horse disease.
3. *The human disease tends to recovery, whereas the equine is invariably fatal.* Thus no opportunity was given to test the effect of second inoculation in the equine disease.
4. *The parasite found in the human disease differs in some important respects from that found in mules.*
5. The essential parasitic lesions in man are similar to those in the mule disease.
6. *The human disease is contagious, whereas we have the strongest evidence that the equine is not so.*
7. Making allowance for difference in the patients, the symptoms of the human disease, the phenomena shown, *ante-* and *post-mortem* in it, and its other clinical and pathological features resemble those of the equine.

The methods of inquiry adopted in the two diseases are exactly the same making allowance for the differences between medical and veterinary methods and facilities. The results are parallel.

I think it is evident that the human and equine disorders are both to be rightly included under the pathological class—Relapsing Fevers. They agree very closely in their *general* characters, but they differ *specially*—probably in accordance with difference in species between the blood organisms in the two. To draw a familiar parallel, they are to one another as Variola is to Vaccinia ; possibly inoculation from a Human Relapsing Fever patient would

secure immunity to a mule from Equine Relapsing Fever, but I should be very sorry to try inoculation of a man with a disease which has proved so invariably fatal hitherto as the Equine Relapsing. The monkey with human disease differed from that with equine as much on *essential* points, as did the man with his fever from the mule or pony with "Surra." The two diseases are first-cousins of one another—not identical, as are Human and Equine Anthrax, for instance. This is an interesting point, which I am glad to have an opportunity of submitting to you for discussion.

In my official report of the Burma outbreak, I have devoted two paragraphs to the casual notice of the relations of Equine with Human Relapsing Fever. I point out one or two circumstances which cropped up in the course of my inquiry, which possibly have a bearing on this matter.

Dr. Evans studied the disease in that most equine-like of ruminants, the camel, but my experiments with the Indian ox and a goat failed to appreciably convey the disease. The temperature tracings obtained from the two animals give no evidence of Relapsing Fever; they never rose more than 2° above the normal, nor exhibited any of the typical features of the Relapsing Fever curve. In spite of constant and most careful daily examinations of the blood, no parasites were found in it. In each case subcutaneous inoculation was tried, and, on that failing, intra-peritoneal injection.

(a) The bullock was an aged animal, very thin on admission, of the Amrut Mahal breed. On January 12th, 1885, he received parasite-containing blood in the dewlap. *Local tumefaction occurred, and persisted for several days*, the red corpuscles became crenated, there was a little lachrymation (one of the earliest symptoms in mules). The urine became acid; sp. gr. 1.040; no parasites were detected at any time in the blood, nor were other signs of disorder manifested.

(b) On January 29th the same animal received two syringefuls of fresh blood from the jugular of a mule, in which blood the parasites are recorded as "fairly numerous, small, attached to the corpuscles, and dragging them slowly." Two injections were made, respectively in dewlap and throat, both on the right side. On the fourth morning from this I obtained the highest morning temperature given by this bullock, but I found no evidence at any time of Relapsing Fever or of parasites in the blood. Swelling occurred at each seat of inoculation, which continued for fourteen days, at least. One day I noted that the blood corpuscles were gelatinoid and large, and arranged in a tessellated manner, an appearance very often seen in the blood of affected mules.

(c) On 12th February, 1885, I injected one syringeful of fresh jugular blood, drawn without air contact—blood in which the parasites are recorded as "numerous and seem aggregating"—into the peritoneal sac with, apparently, entirely negative result. The animal was quite fat when discharged for duty. I believe that these experiments, *which require confirmation, and to be carried out on a large scale, render it probable:—*

(a) That the Indian ox is *locally* affected by subcutaneous injection of parasite-containing blood, but not *constitutionally*.

(b) That a similar negative result follows intra-peritoneal injection. I regret that it did not occur to me to test the effects of inoculation of a mule with blood from this bullock. We have no evidence of cattle suffering from fever in Burma, and Dr. Evans never heard of a case of Surra in horned cattle in the Punjab.

B.—The goat was a young kid inoculated on the same dates and in the same way as the bullock, but the seat of inoculation was the inside of the left thigh, and no local lesions resulted. The animal fed ravenously, but became a mere bag of bones ; it suffered a little from the intra-peritoneal injection. It was slaughtered just before my departure from Rangoon. Its spleen was, *perhaps*, a little indurated, but no abnormality was distinctly traceable. I do not think this animal became affected. Certainly he had not Relapsing Fever, nor were parasites at any time subsequent to the first inoculation detectable in the blood.

It is remarkable that my experiments with the circular blood'-corpusculated ruminants should have in each case (six experiments in all) given negative results.

I think it possible elephants suffer from Relapsing Fever, but have no sound evidence on which to discuss this question.

Dr. Lewis has found flagellated organisms, very like those of Surra, in rats not proved to be suffering from Relapsing Fever.

Thus man, monkey, dog, horse (and pony), mule, and camel are known to suffer from one sort of Relapsing Fever or other ; elephants and rats possibly do. We have a certain amount of evidence in favour of the view that oxen and goats are exempt. The Relapsing Fevers at present may be thus classified :—

RELAPSING FEVERS.....	{	I.—HUMAN ...	{	<i>Natural</i> in man.
		II.—EQUINE...	{	<i>Induced</i> { (naturally) in man.
				(artificially) in monkey.
			{	<i>Natural</i> { in horse and mule (Surra)
				in mule and pony (British Burma disease).
{	<i>Induced</i> —artificially in { mule and			
	{ pony.			
			{ monkey.	
			{ dog.	
		III.—CAMELINE—(possibly the same as II.)		
		IV.—OF ELEPHANTS (?)		
		V.—OF RODENTS (?)		

Editorial.

PASTEUR'S GRAND ACHIEVEMENT.

WHAT might almost be designated the culminating point in Pasteur's remarkable career of discovery in biology and the prophylaxy of contagious diseases, appears to have been reached in the success attending his method of inoculation for the prevention of Hydrophobia in those persons who have had the misfortune to be wounded by rabid animals. Startling as were the results of his inoculations of attenuated virus in such diseases as Fowl-cholera, Anthrax, and Swine-plague, yet these were only practised on animals, and before they were exposed to infection with the lethal or unattenuated poison of these disorders. To carry his inoculating system beyond animals, and to operate on mankind with such death-producing material—if by chance it were not properly prepared, or if it operated in a different manner in the *highest* animal of all—must be considered a bold venture, and one which required an almost excess of courage; but when we reflect that the first disease to be so dealt with was Hydrophobia, at once the most terrifying and terrible, as it is the most fatal, of all maladies, then we perceive what a degree of confidence must have been attained in dealing with this system of preventive medicine, and which could only have been reached by the most conclusive evidence of every kind derived from its practice on animals. To those who have followed Pasteur's progress for many years in the elucidation of problems in physics, biology, and pathology, and who have learned with what care and skill he has demonstrated the novel and nearly always extraordinary facts he presented from time to time, confidence has never wavered as to the absolute reliance that might be placed upon his inferences and conclusions. No philosopher or experimentalist could be more averse to arriving at a premature or incomplete decision, and before he attempted to make known any of his surprising revelations, he has assured himself, by the most scrupulously exacting crucial tests, that the results at which he had arrived could not be gainsaid or disproved.

Though he had perfectly satisfied himself as to the efficacy of his method of fortifying animals against the rabific poison, and had given a new phase and a higher value to this system; yet when he was at first, by accident, solicited to operate on human beings, even those who had the greatest faith in him and his work were fearful of the consequences, and could not help feeling that his apparent temerity might bring ruin to his reputation, and possibly death to the fellow-creatures he was anxious to save from an agonising and certainly fatal disease.

For, irrespective of this being the first time the great step had been taken of operating with his "vaccine" upon mankind, the conditions were widely different from those he had to deal with in the other diseases he had already obtained the mastery over. In these the protective or attenuated virus had been introduced into the system, and had effected its object before the crude or deadly virus was allowed access. In his human subjects this was not so. The deadly, if slow-acting,

poison of rabies had first gained admission, perhaps for a month, before the antidotal rabies-poison could be administered; and in this way the conditions were reversed. But by his long course of experiments, which only genius could devise and the most consummate skill and patience could have carried out successfully, he had ascertained beyond all doubt that the action of the crude poison could be anticipated and neutralised by that which he had artificially treated, even though many—but nevertheless a limited—number of days had elapsed since the persons were wounded.

Such anticipatory treatment had never before been attempted, nor had it ever been surmised that the bane could be made its own antidote in this way. True, it had been observed that persons vaccinated after exposure to Small-pox infection did not take Small-pox; but then the chances were that they would not have had the disease, even if they had not undergone vaccination.

The fame of Pasteur's success in preventing the development of Hydrophobia quickly spread far and wide, and persons wounded by rabid, or supposed to be rabid, animals arrived at his laboratory in Paris from many parts of Europe, and from America, until, at the latest date, more than five hundred had been inoculated under his direction. It is asserted that four-fifths of these had been bitten by dogs whose rabid condition was ascertained by *post-mortem* examinations; and there can be no doubt whatever that at least many of the dogs had been rabid, as animals, and in some cases people, wounded by them had perished.

Of all those Pasteur has inoculated only one has died of Hydrophobia and that was a case in which too long an interval had occurred before the operation was reluctantly performed by him, as he deemed it all but hopeless. One hundred of the patients were bitten before the 15th of December last, so that there has been ample time for the disease to manifest itself in at least some of them, even if the ordinary period of incubation had been greatly protracted. Of the safety of all the people inoculated, Pasteur has no misgivings; and that they had received potent protective virus was demonstrated by collateral inoculations with the same material in animals. In a review of Pasteur's work, which we shall presently offer to our readers, allusion will be made to the manner in which the virus is attenuated and the operative procedure carried out; in the meantime; a strong reaction has taken place in favour of the Pasteurian prophylaxis, and many of those who were before incredulous or doubtful are now enthusiastic believers in it. A grand advance in medicine has been achieved such as this century had not before witnessed, and a Pasteur Institute is to be founded at Paris—an international hospital—for the reception and preventive treatment of people of all nationalities who may be wounded by rabid animals.

The prophylaxy of all contagious disorders of man and animals by this method appears to be now not only possible, but almost within reach. A new era in medicine will then have dawned, and the opprobrium so long attached to the physician's art will be obliterated.

UPON DIRECT LOCAL TREATMENT OF DISEASES OF THE
RESPIRATORY ORGANS OF HORSES.*

SYNOPSIS OF AN ADDRESS BY PROFESSOR W. DIECKERHOFF, BERLIN,
TO A GENERAL MEETING OF THE VETERINARY MEDICAL SOCIETY
OF WESTPHALIA, DELIVERED AT HAMM, ON THE 5TH SEPTEMBER,
1885.

As in earlier days the successful effect of certain courses of treatment was often exaggerated or quite misunderstood, so in recent times greater weight has been given to direct local treatment of internal diseases than it is entitled to. It is not suggested that direct treatment of internal organs is useless, but that careful and extensive trials of remedies and methods must take place before it can be recommended to the general practitioner as rational. According to present experience, direct treatment can only be used with effect upon comparatively few organs. Of these, the lungs have most interest for the veterinary surgeon. Direct pulmonary treatment may be employed for the removal of diseased products (mucus or pus), but particularly to bring about a special stimulation intended to cause resolution of the inflamed parts. To cause medicines to be absorbed by the respiratory mucous membrane is not new, and lately Dr. Levi, of Pisa, has mentioned a number of remedies which may be administered through the trachea; but the greater number may be exhibited equally well subcutaneously, and with greater ease. In the case of certain alcoholic preparations, subcutaneous injection is liable to cause suppuration; such remedies are better employed by the tracheal method. It is hardly necessary to mention that all gaseous remedies are easily absorbed by the respiratory organs, but it rarely follows that a veritable cure results from their use. Up to the present, direct treatment of respiratory diseases has been confined to local diseases. There are three modes of application—by inhalation, injection, and irrigation.

Notwithstanding so important a part is taken by inhalation in the treatment of inflammatory respiratory diseases in man, it has not proved itself very efficacious in horses. True it is that the warmth and moisture of the steam may do some good, but the use of sprays (carbolic acid solution, aromatic infusions, etc.) is far better. It is alleged against them that they lose power in proportion to the distance the area to be treated is situated from the nostrils; therefore, little good follows the treatment of diseases of the larynx and pharynx by constant inhalations. More important are the results of injections and irrigations. As far as Dieckerhoff's experience goes, he excludes pneumonic affections from those likely to be influenced by injections.

Experiments have been made upon Pneumonia in man, and followed by others upon Pleuro-pneumonia in cattle (*Brustseuche*), and Pneumonia (?) in horses. In 1875, Dieckerhoff injected 2 per cent. to 5 per cent. solutions of pure carbolic acid into several pleuro-pneumonic cattle. The process is not difficult. After cleaning the outer skin, a strong, hollow needle is thrust between the ribs directly into the diseased part of the lungs, and by means of a syringe 10 to 15 grams of the solution are injected. No untoward symptoms are developed, but the course of the disease remains unchanged. A portion of the lung tissue, about as large as a walnut, is impregnated with the solution, and dies. If the animal survives the disease, the necrosed area is removed by absorption. The surrounding parts remain unaltered. Similar injections into pneumonic horses, repeatedly carried out, were equally unsuccessful; they are worthless. Instead of injections through the walls of the chest, the

* Translated from the "Wochenschrift für Thierheilkunde und Viehzucht," by T Raymond, A.V.D.

next thing attempted was inter-tracheal injection for Pneumonia. It is acknowledged that solutions of suitable remedies may be safely introduced into the bronchial tubes in quantities of 100 grams and over. Dieckerhoff employed solutions of pure carbolic acid, tannin, alum, and other remedies, without effect. These negative therapeutic results may be explained thereby, that only a small portion of the material finds its way to the diseased area; the greater portion trickles down the bronchial tubes and is carried to healthy parts. It must also not be forgotten that the infective material of Pneumonia permeates the tissue of the lungs, whereas the tracheal injection can at most only penetrate the bronchial tubes, on account of the blocking caused by inflammatory products. Those who are acquainted with the treatment of erysipelatous skin diseases by disinfectants, know that these remedies only act when applied continually. In erysipelatous Pneumonia, the drugs cannot be applied in sufficient strength to cut the disease short, even when repeatedly injected into the trachea. It follows from these facts that although *à priori* good results might be expected, the result of actual experience is against this treatment for pulmonary disorders.

The effects of the new method upon diseases of the nasal cavities, sinuses, larynx, and pharynx was next considered.

Having mentioned the well-known methods of irrigating the nasal, frontal, and maxillary sinuses and the guttural pouches, Dieckerhoff drew attention to simple inflammatory and pustular conditions of the mucous membranes of the larynx and pharynx in horses, stating that these parts are easily subjected to direct treatment. He did not suggest that ordinary means would henceforth be rendered unnecessary, but explained that in the majority of cases under his care the recourse to injections induced a milder form of disease, and brought about a quicker cure. There is no complaint which causes horsemen more annoyance than chronic irritative disease of the larynx, notwithstanding every remedy usually employed.

Gerlach has recommended subcutaneous injections of morphia in the neighbourhood of the larynx. Dieckerhoff tried this mode without result, but recently he treated seven horses suffering from chronic laryngeal cough, by his method (inter-laryngeal). Five animals recovered completely, and two were greatly relieved. He asserts it is the only way by which this disease can be cured. The *modus operandi* is as follows:—A strong, hollow, curved needle is screwed to a syringe capable of containing 100 grams. The horse's head is extended, and the needle thrust through the skin and crico-tracheal ligament. The point of the needle is directed into the larynx, the syringe quickly emptied and withdrawn. Care must be taken that only the point of the needle is sharpened, otherwise a piece of tissue may be excised which, becoming fixed in the tube, renders it temporarily useless. If properly diluted, any medicine in use for the treatment of mucous membranes may be thus employed. Even pure water, at a temperature of 15°—30° centigrade will stimulate the parts considerably in laryngeal Catarrh, and hasten recovery. Dieckerhoff generally employs 0·5 per cent. solution of alum; Aluminium aceticum (0·5 per cent.), Plumbium aceticum (0·3 per cent.), Kalium chloricum (1 per cent.), etc., etc., are also useful. After the operation the horse coughs, but not so violently as might be expected. Some patients cough only five or ten times, others more, whereby a portion of the injection is ejected through the nostrils. The advantages claimed for laryngeal and tracheal injections are based upon the theory that the remedy penetrates all recesses and folds of the membrane, and therefore directly attacks those parts most difficult to reach in Catarrh. It often happens that a single application suffices; when this does not occur it may be repeated in from one to five days. No unwelcome complication has resulted from the procedure, but the skin must be firmly pressed against the larynx when the needle is withdrawn, or it may happen that some of the

fluid penetrates the cellular tissue, causing inflammatory swellings, which, however, disappear, as a rule, in a few days, although in some horses a certain amount of fever is witnessed.

Dieckerhoff records two cases in which suppuration resulted from continual use of the injection, and the abscesses had to be lanced. He asserts, however, that, on the whole, this occurrence is rare.

ANTIPYRIN.

BY MR. H. FRICK, OF THE INFIRMARY FOR SMALLER DOMESTIC ANIMALS ATTACHED TO THE ROYAL VETERINARY SCHOOL, BERLIN.

MR. FRICK, who has been experimentalising with antipyrin upon dogs, sums up his conclusions thus :—

1. Antipyrin invariably reduces the temperature in fever, irrespective of the cause.
2. It is like salicylic acid, a specific for rheumatism, but has no effect upon local disease.
3. Concentrated solutions (1 : 1-2) applied subcutaneously cause local irritation, resulting in the formation of abscesses. This may be avoided by using diluted solutions (1 : 4-5).
4. Its action is the same whether administered subcutaneously or per oram.
5. The maximum dose for dogs is five grams ; tonic effects follow the exhibition of more.

He regrets he has had no opportunity of trying antipyrin upon the larger domestic animals, which he considers desirable.

NEW INVENTIONS.

A VERY valuable companion for the canine practitioner has been devised and introduced by Mr. Tom Fletcher, M.R.C.V.S., of Sheffield. It is an instrument for catching dogs, something in the style of a fishing-rod, with a round loop at the end to throw round the neck of a rabid or vicious animal, which completely secures or lassoes the dog. It is well understood that veterinary surgeons run very great risks in trying to catch or secure a strange dog for the purpose of examination, or for giving it a pill, frequently getting bitten in the attempt. This little instrument has been invented by Mr. Fletcher to prevent all accidents occurring in this manner, and as Hydrophobia is certainly on the increase, this patent dog-catcher will be a welcome companion to the canine practitioner. It is very portable and light, and can be easily carried in the hand. It is the design of a practical and experienced man, and must commend itself to those that wish to go well armed and thus prevent any evil consequences following the bite of a rabid dog. It is a most useful, sensible, and practical addition in the way of instruments, and cannot fail to become a favourite with the profession, especially those occupied in canine practice. We commend it strongly. The instrument can be obtained of Messrs. C. J. Hewlett and Son, London.

A very complete and elaborate pocket-case, which was first introduced at the Veterinary Congress, Birmingham, by Messrs. C. J. Hewlett and Son, seems to have attracted, and still continues to occupy, great attention. It contains a Russell's castrating knife, Gowing's operating knife, with an exploring needle, Symes' abscess knife, blunt bistoury, curved and straight scissors, caustic holder, probe and director, canula and trocar, clinical thermometer, needles and silk. The knives are set in tortoiseshell, and are beautifully finished, and all the instruments are of the very best quality, and

arranged in a handsome morocco case. It is, without doubt, one of the most practical, convenient, and elaborate pocket-cases that the veterinary profession has been accustomed to. It reflects very great credit on the designers, and must be considered a valuable and useful little companion to the general practitioner.

WONDERFUL ENDURANCE OF ARAB CAVALRY HORSES.

THE extraordinary endurance of the small horses—almost ponies—known as Arabs, has been exemplified in a startling manner during the recent operations in the Soudan.

The 19th Princess of Wales's Own Hussars, commanded by that excellent cavalry officer, the late Lieut.-Colonel Barrow, were mounted on these little animals during the campaign on the Nile for the relief of Khartoum, and the record of the conditions under which they performed their work, as given by the Colonel, is full of interest for all lovers of horses. The following is the description :—

Arab Stallions.—Average height, fourteen hands ; average age, eight years to nine years ; some 15 per cent., over twelve years, bought by Egyptian Government in Syria and Lower Egypt ; average price £18.

Some 50 per cent. had been through the campaign in the Eastern Soudan with the 19th Hussars, in February and March, 1884, and returned in a very exhausted state, and about 10 per cent. had been at Tel-el-Kebir.

In June, 1884, the whole number were taken, by Lieut.-Colonel Taylor, with the Egyptian Cavalry, from Cairo to Assouan, in barges, and remained there three months.

In September, 1884, they were marched, by Major Grenfell, from Assouan to Wady Halfa, 210 miles, and there awaited the arrival of the 19th Hussars. 350 of these ponies were handed over to the 19th Hussars, on 13th November, 1884, all, except some 10 per cent., being in very fair marching condition.

The 19th Hussars marched by squadrons from Wady Halfa to Korti, distance about 360 miles, average daily march about sixteen miles, not including halts. Halts were made for one day at Absarat, one day at Dongola, and two days at Shabaddood, when crossing the river.

The ration was supposed to be 8 lbs. of grain, barley, or dhourra, and 10 lbs. of dhourra stalk, but, owing to scarcity of grain, the horses generally received about 6 lbs. of grain and 10 lbs. of dhourra stalk.

They arrived in Korti in very good marching condition.

The horses remained at Korti from 20th December to 7th January, and received 8 lbs. of green dhourra stalk daily, instead of dry stalk.

They improved during the halt at Korti.

On the 30th December, forty horses proceeded to Gakdul, 100 miles, and performed the reconnaissance duties of the column. The march to Gakdul was performed in sixty-three hours ; fifteen hours' rest there, and the return journey in sixty-three hours. Six horses returned the 100 miles in forty-six hours, the last fifty miles in seven and a-half hours. During the 141 hours of the march the horses were ridden for eighty-three hours.

On the 8th January, the 19th Hussars, strength as below, marched across the desert with General Sir H. Stewart's column.

Officers	...	...	...	...	...	8
Men	...	...	...	...	...	127
Horses	...	...	...	...	...	155

In addition, therefore, to one extra horse for each officer, there were twelve spare horses.

The following table will show the daily work performed, and the amount of food and water given daily to each horse.

The forty horses referred to in previous paragraph returned to Korti on the 5th, and started again on the 8th as fit as any horses in the troop. There was not one casualty out of the forty.

Date.	Time of March.	No. of Hours.	No. of Miles.	When Watered.	Amount of Water.	Food, Grain.
8th Jan.	2 p.m., 6 p.m. ...	4	16	...	...	6lbs
9th "	{ 2.45 a.m., 10 a.m. ... 2 p.m., 6 p.m. ...	{ 7 $\frac{1}{4}$ 4	{ 29 16	{ 10.30 a.m. ... 6.15 p.m. ...	{ 1 $\frac{1}{2}$ gallons $\frac{1}{2}$ "	{ 6 " 6 "
10th "	{ 3 a.m., 9 a.m. ... 12.15 p.m., 4.30 p.m.	{ 6 4 $\frac{1}{2}$	{ 24 17	{ 4.45 p.m. ... 12.45 p.m. ...	{ $\frac{1}{4}$ " Full drink	{ 6 " 6 "
11th "	3.30 a.m., 12.30 p.m.	9	36	12.45 p.m. ...	Full drink	6 "
12th "	12.30 p.m., 4.30 p.m.	4	16	{ 9 a.m. ... 4.45 p.m. }	{ " "	{ 6 " 6 "
13th "	Halt at Gakdul ...	...	...	{ 8.30 a.m. ... 4.45 p.m. }	{ " "	{ 6 " 6 "
14th "	2.30 p.m., 6.30 p.m. ...	4	...	6 a.m., 1 p.m.	"	6 "
15th "	{ 5 a.m., 10 a.m. ... 1.30 p.m., 6 p.m. ...	{ 5 4 $\frac{1}{2}$	{ 20 18	{ 10.30 a.m. ... 6 p.m. ...	{ 1 $\frac{1}{4}$ gallons $\frac{1}{2}$ "	{ 5 " 4 "
16th "	4.30 a.m., 4 p.m. ...	11 $\frac{1}{2}$	40	6 p.m. ...	$\frac{1}{2}$ "	4 "
17th "	8 a.m., 4 p.m. ...	8	32	4 p.m. ...	2 "	4 "
18th "	4 p.m., 12 midnight ..	8	32	7 a.m. ...	1 "	3 "
19th "	{ 12 midnight, 9 a.m. ... 9 a.m., 12 midnight ...	{ 9 21	{ 36 36	{	{	{ 1 " 1 "
20th "	{ 12 midnight, 1 p.m. ... 1 p.m., 2 p.m. ...	{ 13 1	{ 4 4	{ 2 p.m.	{ Full drink ...	{

It will be seen from the above table that the average forage ration for the first ten days was about 5 lbs. to 6 lbs. of grain and two gallons of water, the horses performing thirty-one miles daily, and not counting one day's halt.

When the first advance was made on Matammeh, the horses marched to the Nile without having received a drop of water for fifty-five hours, and only 1 lb. of grain. Some fifteen or twenty horses received no water for seventy hours.

During the period (20th January to 14th February), the horses received no grain, but were fed on dhourra stalk, about ten pounds daily, or green bean stalk, or green dhourra stalk, about 12 lbs. daily. Two days before marching they received 6 lbs. of grain.

They performed outpost and patrol duty, averaging some eight miles daily. Under the above conditions, the horses recovered from the efforts made during the desert march, but many were in a weak state.

The first seventy-five miles the horses performed the whole distance on 4 lbs. of grain and three gallons of water; the remainder of the journey water was plentiful and 8 lbs. of grain were supplied.

Two marches of over forty miles were performed, which shows that the horses were still able to march.

After two weeks' rest at Korti, the horses marched strong and well to Dongola, and other stations, receiving plenty of food and water, and after

two months' halt they were in quite as good condition as when they left Wady Halfa.

On the return march to Wady Halfa, the distance, some 250 miles, was performed at the average rate of some sixteen miles a day, with one halt for two days.

The marching was done mostly at night, but the horses were generally exposed to a hot sun all day, as there was not much shelter for them under the palm trees. Except two fractures from kicks, no horses were lost or left on the line of march.

The horses were conveyed from Wady Halfa to Assouan in barges, and after two weeks' rest at Assouan were handed over to the 20th Hussars in quite as good order as when they left Wady Halfa, nine months previously.

The attached statements gives a detailed list of casualties.

I think it may be considered a most remarkable circumstance that out of 350 horses, during nine months, on a hard campaign, only twelve died from disease. This result must be attributed to the two facts :—

1st. That the climate of the Soudan is most suitable for horses.

2nd. That the Syrian horse has a wonderful constitution, and is admirably suited for warfare in an Eastern climate. The distance actually marched, from point to point, not taking any account of reconnaissance, etc., was over 1,500 miles.

The weight carried was reduced to the minimum, but averaged about 14 stone.

The weather during the last four months of the campaign was trying, food was often very limited, and, during the desert march, water very scarce. Under the above conditions, I venture to think that the performances of the regiment on these Arab ponies will compare with the performance of any horsemen on record.

CASUALTY RETURN of Arab Ponies, 19th Hussars, 13th November, 1884, to 5th July, 1885.

Summary.

Killed in action	20
Destroyed	37
Drowned	1
Missing	1
Died	12
Total	<u>71</u>

Diseases.

Bullet Wounds	23
Exhaustion	31
Fractures	7
Paralysis	1
Enteritis	1
Farcy	1
Purpura Hæmorrhagica	1
Rupture of Intestines	1
Rupture of Stomach	1
Saddle-gall	1
Colic, spasmodic	1
Missing	1
Drowned	1
Total	<u>71</u>

NOTE.—Several horses were very severely wounded, but recovered rapidly, though in a very exhausted state.

CASUALTY RETURN of Arab Ponies, 19th Hussars, showing periods during which Horses died, 13th November, 1884, to 1st July, 1885.

Period.	Number of horses effective.	Destroyed or died from debility and exhaustion	Destroyed or died from other causes.	Killed in action.
Wady Halfa to Korti, 13th November to 8th January, 1885	350	..	5	..
Korti to Matammeh and back, 8th January to 8th March	155	19	5	20
At Korti, 8th January to 8th March ..	73	..	2	..
With River Column, 1st January to 8th March	107	3	1	..
Korti, Dongola, and other stations, 9th March to 20th June	347	5	9	..
Dongola, Assouan, 21st June to 1st July.	380	..	2	..
Total .. .	..	27	24	20

1. When water was limited to two gallons or less, it was given in small quantities, not all at once. Even one pint given to the horses, or just enough to moisten their mouth, enabled them to come up to time again.

On one occasion, late at night, the horses were much exhausted, we were thirty-five miles from water, and less than one pint left per horse. The horses could not eat, their mouths were so parched. I had a sack of dhourra meal, and with water made a number of moist balls of meal. These balls revived the horses, and they marched their thirty-five miles next morning. I obtained this hint previous to the campaign from General V. Baker, who told me that the Turkomans used to carry in skins, balls of grease or oil, and meal.

2. The horses were saved on every possible occasion, and by every possible device. The men never sat on their horses' backs a moment longer than necessary. Marches in column were avoided, extended line being used, so that each horse had pure air to breathe. When picketed, horses always had plenty of room, and their heads to the breeze.

When possible, they were washed two or three times a week, which tended much towards their healthy condition.

The horses were allowed to graze on every possible occasion on the grass of the Bayuda Desert, but it was very dry. They chewed the grass, but ate very little. During the last few days of the march to Matammeh there was no opportunity for even giving the horses grass. On several occasions I obtained from the Commissariat tins of mouldy biscuit, unfit for issue to the men ; the horses ate this greedily, and worked on this food.

THE FELLOWSHIP DEGREE OF THE ROYAL COLLEGE OF VETERINARY SURGEONS.

AN examination for this Degree was held on the 24th February, when five candidates presented themselves, of whom Messrs. E. E. Bennett, A.V.D., J. D. Barford (Southampton), and H. Leggett (Luton), passed a successful examination.

Dr. G. Fleming, F.R.C.V.S., Messrs. Cox and Duguid, F.R.C.V.S., and E. Pincher, B.A., were the examiners, and Mr. A. W. Hill secretary.

PRESENTATIONS FOR NEW COLLEGE BUILDINGS.

PROFESSOR PRITCHARD has offered, and the Building Committee has accepted, a handsome table for the committee-room.

The Central Veterinary Medical Society has offered a stained-glass memorial window for the council-room, and Mr. H. L. Simpson (Windsor) and Mr. J. F. Simpson (Maidenhead) have jointly offered another. Both offers have been accepted, and the windows will be placed in position before the date of the annual general meeting of members in May.

Proceedings of Veterinary Medical Societies, &c.

LIVERPOOL VETERINARY MEDICAL ASSOCIATION.

(Continued from page 213.)

Mark the sequence ; fate decreed that in a few hours I landed unwittingly within a few miles from the home of the condemned horse, and knowing that I had been to the show in question, one of the first questions put to me by my entertainer was, "How did it come about that —— was awarded the £100 premium yesterday?" and the question was followed by the offer to show me, in the short space of two hours, twenty of the progeny of the particular horse with curbs or curby hocks.

Not only does the question of hereditary transmission of defects stand out prominently in connection with the selection of sires and dams, but the still more important question presents itself—*What will be the probable result of these defects when the horse or colt is, in due course, put to hard work?* And who, I would ask, is best qualified to give the answer? Most certainly the veterinary surgeon, not only by virtue of his scientific training, but still more importantly by virtue of his practical training ; by virtue, in other words, of the experience he gains in his every-day practice as to the results of such defects, and from the treatment of which results he derives a large part of his professional income.

Some little time after the appearance of my paper on the breeding of horses, and the showing of horses, in the *North British Agriculturist*, I met a well-known Clydesdale man at a railway-station in the south of Scotland. We were unknown to each other, but were quickly introduced by a mutual friend. In a few minutes my new acquaintance opened up a discussion on the various points to which I had directed attention in my paper, and curiously enough he professed great indifference to the injurious effects of sidebones and roaring in working horses : "a wee bit sidebone," "a puffed hock," or "a bit of a grunt or a roar," were, in his view, of no consequence ; but after I had quietly asked him from what source the veterinary surgeons in towns and cities derived a very large share of their daily work, he was fain to acknowledge that "after all he was not very partial to sidebones, nor did he like puffy hocks or roaring."

I am convinced that there is nothing to be gained by breeders and judges wilfully closing their eyes to such defects as I have mentioned. On the contrary, there is a great deal to be lost by such a course, and although they may successfully dispose of their two or three-year-olds, the dealer will be the loser in the long run when his high-priced youngster is condemned as having some important structural defect which renders him unfit for stock-getting or for hard work.

But the difficulty in this matter is not in the making of you or me believe the truth of this statement, but in the convincing of the prejudiced mind of the breeder and the dealer. Given a good top, good feet and legs, and a commanding appearance ; grave structural defects are by these men

passed over, and that, too, very frequently to their own ultimate loss. A little circumstance which came under my immediate observation a year or two ago will illustrate my meaning. I was requested by the manager of a western ranche to accompany him to two separate farms in the Lothians, and there examine a two-year-old colt and a three-year-old mare respectively. The former had, very pronouncedly, bog spavins, and I had very little difficulty in convincing him that it would be a great mistake to purchase such an animal for breeding purposes. The mare had a distinct bone spavin on the off hock, and sidebone on each fore-foot, and was distinctly lame, even on a soft road, on the off foot. I had no difficulty in convincing my friend of the existence of these defects, but seeing that the animal was, so far as conformation was concerned, a perfect model, and, had she been sound, well worth the two hundred guineas asked, the intending purchaser had the greatest possible difficulty in making up his mind to leave her. At last he asked my candid opinion, as he said (though he had already had it a dozen or more times), as to the probability of the defects which I had pointed out to him interfering with the breeding capacities of the mare. My answer was such as I would always give under similar circumstances. I said, "If your object is to breed colts for disposal at one and two years old, well and good; but you must be prepared for the inevitable result, viz., that in due course the defects pointed out will make their appearance in the offspring, and the character of your ranche as a breeding establishment will be effectually and deservedly damned." Mr. T—— was a conscientious man, he had a character to preserve and a name to make, and the mare remained in the possession of her owner. I think, gentlemen, it may be laid down as an axiom in breeding, "that if lasting success is to be attained, only sound sires and sound dams should be selected; but if breeding is to be carried on only for the purpose of temporary gain, then let animals of an attractive form and appearance be chosen, and let soundness go to the winds." Those who adopt the latter part of this axiom as their guide must not be disappointed at the result. If the Manchester merchant elects to palm off shoddy articles on his customers, he must not grumble if the genuine merchant displaces him in his own market.

To read the remarks of some who write on the fallacy, as they are pleased to call it, of veterinary examination, one would imagine that it was to the interest of the veterinary surgeon to condemn every animal submitted to him for inspection. If this were true, however, he would be simply cutting his own throat, because it must be patent to all that the more unsoundness there is the more will veterinary surgeons profit by it. To me it is no pleasant task to condemn horses as being unsound, either when they are intended for breeding or for working purposes; and it is a matter for melancholy reflection that the very large majority of horses submitted to us for inspection are imperfect, and that if a deal is to take place, a large reduction in price has in many instances to be made, or a special warranty with some grave defect given. Now, all this could be, at least to a very large extent, avoided if the true function of the veterinary surgeon was recognised and utilised at the fountain head, instead of being called into action when it is too late to prevent, and when all his efforts have to be directed towards palliation or reparation of preventable defects.

Another curious argument, often used for the purpose of showing that veterinary examination is not reliable, is, that defects known to outsiders are not always detected, or defects which have no existence are thereby discovered. In illustration of this remark, I will again refer to our quondam friend "Macgregor," who gives, as a reason why veterinary examination is so little thought of, two facts, the first being that "a well-known veterinary surgeon, on a particular occasion, condemned a carriage-horse for blindness,

and subsequently passed the same horse as sound, to the delight of the triumphant dealer and the disgust of the purchaser;" the second being, "that a very high veterinary authority passed, as sound, a mare which was, and is, notoriously known to be affected with Stringhalt."

What are the two facts worth? Not the value of the paper used for writing them upon. "Macgregor" does not seem to be aware of the fact that an animal may be blind from the effects of Ophthalmia one day, and be in full possession of its eyesight a few days afterwards; nor does he recognise the further fact that there are times when Stringhalt is not manifested at all, no matter to what tests the sufferer may be subjected.

As an illustration of this statement, I may mention a circumstance which came under my own notice in November last. A grey cart-horse was purchased on the 5th of that month; he was sent to me for examination on the 6th. I found him suffering from a severe cold and from Stringhalt on the near hind-leg, and I certified accordingly. Two days after, I was asked to go and see the horse, as the dealer had refused to take him back, and the cold had become much worse. On going into the stable, I was at first surprised to see the near hind-leg spasmodically flexed, even while the animal was standing quiet in his stall. As the cold passed off the nervous symptoms subsided, and in ten days I could not produce the slightest manifestation of the Stringhalt, no matter what movements I subjected the horse to; but on his being subsequently sent to a livery-stable at the risk of the seller, I was informed voluntarily by the ostler that "the click in the nar hint leg was sometimes gie bad."

As to the advisability of a veterinary examination of all prize-horses, there can be in the minds of unprejudiced persons little doubt. Mistakes may be made, for no class of men, I take it, are infallible; certainly judges and breeders are not, for they more frequently differ amongst themselves, even on minor points, than do veterinary surgeons, or any other persons who are called upon to give opinions upon subjects which allow of the exercise and expression of different views. Even lawyers differ most materially amongst themselves in minor points, although they are dealing with written, while we are dealing with unwritten, laws.

As to the best method of utilising veterinary knowledge, there may be, legitimately, differences in opinion, *i.e.*, as to whether it is advisable that only those horses which are put in the prize-list should be examined, or as to whether every horse entered for a prize should be submitted to the ordeal. Personally, I am in favour of the first method, and in the event of the examiner finding any transmissible defect, I would have it reported to the directors and explained to them, and let them abide by the opinion, or if in doubt, seek confirmatory evidence. To this method of procedure the objection may be urged, that amongst the horses outside the prize-list there may be many who are quite unsound; but the fact of their having been allowed to be exhibited in a show would tend in the minds of outsiders to afford a kind of official recognition of their fitness for procreative purposes. To such an objection I would apply the axiom, *caveat emptor*, and if a body of men, desirous of obtaining the services of a district stallion, go about the selection without veterinary aid, as I know is sometimes done, they deserve to suffer from all the ills to which such a proceeding is likely to give birth.

An important decision has, I observe, been arrived at by the Shire Horse Society, *viz.*, the selection of an inspector, who will have the power of nominating two other veterinary surgeons as colleagues, and the conjoint certificate of two of these will be held as binding. The plan ought to work well and satisfactorily.

The second part of my subject, I need scarcely say, is intimately related to the first, and in my remarks thereon I shall not enter into the much-discussed

question as to what is or what is not unsoundness, but shall rather indicate what, in my opinion, is the position that should be assumed by the veterinary surgeon in carrying out the duties imposed upon him in examinations as to soundness.

To ordinary minds, the first function of the veterinary surgeon in such examinations is that of a discoverer of such defects as shall invalidate a bargain between seller and buyer.

Well, gentlemen, I am not here to-night to gainsay this proposition ; but I would rather put the matter in another way, and say that the function of the veterinary surgeon in the circumstances under consideration is that of a protector and an arbiter. In the former capacity he has to protect the unwary purchaser from the too often evil designs of the unscrupulous vendor ; in the latter capacity he has to hold the balance between the vendor and vendee on doubtful points.

It is, perhaps, a mere truism to say that the first of these functions is less often called into requisition at the present day than it was thirty or forty years ago ; but granted that this is so, the veterinary surgeon has still, in examinations for soundness, "to keep his weather eye open." Chicanery is not a thing of the past, it exists even in this enlightened nineteenth century, and he who would steer clear of the quicksands and shoals prepared by the copier must exercise all his faculties, and trust not to the assertions, however forcibly expressed, of the unscrupulous dealer. Many years have not elapsed since the late Tom Taylor, inspired by a kind of prescience of wrong-doing on the part of a supposed respectable horsedealer, retraced his steps from his yard to his forge just as he was about to write a certificate of soundness, and directed one of his shoeing-smiths to run his knife round the junction of the sole and wall of the foot of a horse he had just finished examining, with the result of discovering an extensive separation (seedy toe) cleverly filled in with gutta-percha. Within the past few years I have seen the hocks of a horse pounded to a jelly with the object of disguising a bone spavin. I have seen a sandcrack beautifully obliterated by the aid of composition. I have seen the teeth of old horses *bishoped*, and I have known a lame horse *beaned*, a broken-winded horse *set*, and a slipped shoulder *puffed* ; while all present are cognisant of the attempts made at different times by would-be clever cheats to deceive the veterinary surgeon by the aid of *dyes* and *intentionally inflicted wounds*.

As an arbiter, the veterinary surgeon is called upon almost every day to exercise also a protective function. He has to call to his aid the special knowledge he has gained in the course of a long and varied practice as to the probable influence of certain common defects to which the equine species are pre-eminently liable—he must, in fact, combine the qualities of a horseman with those of a specialist, and give due weight to the teachings of each.

That veterinary surgeons do differ materially amongst themselves, not only as to the existence of a particular defect in a particular animal, but also as to the practical significance of acknowledged defects, must be admitted. But the admission does not deprive all professional opinions of their value, nor does it detract from the value of an individual opinion, providing that opinion is based upon scientific and practical knowledge, and has been arrived at after a careful examination, in the first place ; and a judicial consideration of the probable influence in any given kind of work of any defect that may have in the course of the examination been discovered, in the second. The veterinary surgeon is not, unfortunately, in the same position as the lawyer who presides as a judge at a trial, and after receiving evidence takes his own time to examine and weigh it ; he cannot, in other words, take the case to avizandum, he must decide offhand, and not infrequently he is driven into a corner by being required to give a definite answer to the apparently simple question, "Sound, or unsound?"

Gentlemen, you know as well as I do the difficulty which oftentimes exists in giving a positive answer to this query. Defects, which of themselves, you feel convinced, will never damage a horse to any material extent, are nevertheless, *in the eye of the law*, unsoundness ; and if the horse has been purchased as sound, and the purchaser is determined upon binding the seller down to the literal significance of the word, the veterinary surgeon, in the event of his discovering a defect in itself harmless, but nevertheless possessing all the attributes of a defect, must answer the question in the affirmative. He has no choice in the matter, and should the purchaser have discovered that his purchase is too dear, or that his first impressions of the good qualities of the animal were deceptive, or should he be of a positive turn of mind, he will bind the seller by the terms of the certificate the veterinary surgeon has felt himself bound to grant. On the contrary, should the purchaser be desirous of actually acquiring his purchase, and be at the same time possessed of a modicum of common sense and of horse knowledge, he will listen to the explanation offered by the veterinary surgeon as to the probable influence of a particular defect, and will either run the risk of any ulterior evil that may result therefrom, or will ask the seller to protect him by a special warranty, or indemnify him for any probable loss by giving him a £5 or a £10 note off the selling price. That the adoption of the latter course is often productive of the best results must, I think, be the experience of each one of you ; while the dogmatical use of the words *sound* and *unsound* frequently leads to a large amount of litigation, out of which no good, except to the lawyers, ever comes.

I do not, however, wish it to be understood that the adoption of such a course as the one above suggested will in every instance meet the difficulty ; for it will sometimes happen that dealers will resent the slightest imputation on the characters of their horses, and will turn heaven and earth to upset an unfavourable opinion, without paying the slightest heed to any explanation that may be offered as to the nature of the defect pointed out. And I am bound to confess that they sometimes succeed in obtaining opinions which do not exactly coincide with the one given by the original examiner. It also occasionally happens that the veterinary surgeon to whose examination the animal is in the second place submitted may, while he acknowledges the existence of the defect pointed out by the original inspector, be too timid to support his professional brother, and may get out of the difficulty by declining to commit himself to a definite opinion. That veterinary surgeons are very frequently the means of saving their clients from heavy losses in the purchase of horses is an acknowledged fact ; and we, as practitioners, witness every day the punishment—shall I so call it?—which is inflicted upon the would-be clever horse-buyer, who trusts to his own cleverness to protect himself from loss. In illustration of this truth I will cite one case. A large contractor who, for some reason or other, had for several years dispensed with veterinary assistance in the purchase of horses, and who, to my certain knowledge, had suffered heavily in consequence, asked me to examine two cart-geldings which he said were put on to him at a very high price. The dealer objected to the examination, but the intending purchaser insisted upon it, giving the seller the option of taking the horses away if he so desired. On examination, I found that both the horses had sidebone, and one was going lame, and I certified accordingly. The next time I met my client I said, “What about the two horses?” The answer was, “Well, the horses suited my work, and as the dealer took off £15 from the price, I kept them.” I replied, “That is the cheapest guinea’s worth you have had for many a long day ;” and my friend was fain to acknowledge the truth of the remark. On another occasion I pointed out to an intending purchaser that the horse I had examined had a bog spavin in the off hock, but, as he was going sound and had to perform

slow work only, the defect might not interfere with his usefulness, and in any case, should he show signs of lameness, the application of a blister or of the actual cautery would remove the lameness. In order, however, to meet such a contingency, I advised my client to get the dealer to take a £5 note off the price of the horse. The advice was acted upon, and in the course of a few months lameness ensued, but on the application of proper treatment it passed off, and the horse has continued unintermittingly at his work ever since. Such instances might be multiplied indefinitely, but those quoted are sufficient to illustrate my meaning.

The examination of horses as to soundness in cases where the purchase has been made under a warranty is, perhaps, productive of more litigation than is any other mode of purchase at present in vogue in this country, because immediately a horse is declared by a veterinary surgeon to be unsound, the warrantor rushes away to other veterinary surgeons and endeavours to obtain *certificates of soundness* wherewith to combat the certificate of unsoundness granted by the original examiner, and, unfortunately, he too often succeeds in accomplishing his purpose, and the result is endless and vexatious litigation, the evil effects of which are never afterwards wiped out from the minds of the litigators.

I have more than once during my professional career made energetic endeavours to get such cases settled by arbitration, and I am quite convinced that there is no better mode of settling such unfortunate disputes than by submitting the animal in dispute, with the bare facts of the case (not the professional opinions), to a conscientious and upright veterinary surgeon; each of the disputants agreeing beforehand to abide honourably by his decision. If this method of dealing with such cases were universally adopted, much money would be saved to the parties concerned, and men of litigious proclivities would be kept within due bounds, and in the long run even the loser would be the gainer.

There is, however, another aspect from which to look at the subject of examination of horses as to soundness, and an aspect which has been brought prominently into view in one case in England and in another in Ireland. I refer to a decision given, in the first place, by a county-court judge in a trial which was held last summer in my own town, Market Drayton. That decision was to the effect that, where it was agreed between seller and buyer that a horse is to be submitted to veterinary examination, the purchaser has the right of selecting the examiner, and both vendor and vendee are bound to accept his opinion. But the seller has it in his power to challenge the opinion, and to refuse to be bound by it if he can show that the examiner is, from any cause, incapable, or that he has not taken due care in his examination, or has been influenced therein by any fraudulent or dishonest motive.

Gentlemen, I do not hesitate to assert that if this decision is shown to be in accordance with existing law, it will revolutionise the whole question of horse purchase, and in my view the revolution will be an acceptable as well as a beneficial one.

Some people may object to such a simple solution of the difficulty, and may argue that it is hard to be bound by the opinion of one man; but to such I would say that they are only placed in the same position as that occupied by the vendors of almost every species of property, except horse property. If you or I were about to purchase an estate (I wish we were all in a position to do so), we should secure the assistance of a competent surveyor or valuator, and if we honestly intended to be guided by him we should abide by his decision; we should be the employers of the surveyor, not the vendor; we also should have to pay him, and he would be bound in all honesty to give us, to the best of his ability, his professional advice.

Why should not the sale and purchase of horses be carried out on the same lines ?

A, for example, has a horse to sell ; B is desirous of buying him ; B is the interested party, and he should select his own adviser, and be guided by him without the possibility of A (who does not pay for it) questioning the advice given. But there are two corollaries to this : the first is that the examiner, in view of the great responsibility thrown upon him, should be adequately paid for his services ; the second is that he must be qualified to perform these services.

Is the usual fee charged for examination sufficiently large ? I think there is not one person in this room who will not agree with me when I say that it is not. Half-a-guinea, or even a guinea, is miserably inadequate payment (when dealing with animals over £50 in value, and, as oftentimes happens, of £300 or £400 in value) for the service rendered, and the worry, responsibility, and annoyance too often attendant upon it.

I am convinced that horse-dealing transactions would be much simplified, and shorn of many of their objectionable features, if they were placed on a more commercial basis than they now are. The veterinary examiner, knowing that he was adequately paid for his services, and that he could be held responsible for any lack of care in the examination, or for ignorance or wrongful intentions, would strain every nerve to perfect himself for the satisfactory performance of the duty of surveyor, while the vendor and the vendee would each alike be bound to accept his opinion and abide by his decision ; and thus much litigation would be saved, and veterinary surgeons would not so frequently, as they now do, offer to the world the spectacle of a profession divided against itself, nor would so many unfortunate instances of cross-swearing arise, as is now, alas, the case. In conclusion, gentlemen, I will just say that in my opinion the warranting of horses is a great mistake, as a seller may warrant (in all honesty) a horse one day, and the animal may be dead on the following, and the warrantor be held responsible for the death. I would, had I the power, have but two laws in reference to the warranty of horses, viz., one to protect purchasers against defects of an obscure or intermittent character, but the existence of which was known to the seller at the time of sale ; the other to protect purchasers against such chicanery as the administration of laudanum to vicious horses, or in chronic cough, and beaming of the foot in lameness.

After Professor Walley had resumed his seat during much cheering, the PRESIDENT invited a free and open discussion, requesting Mr. J. Roalfe Cox to offer the first criticism.

Mr. COX, after thanking Professor Walley for his paper in very eulogistic terms, said : I consider that the examination of horses is a personal matter. Every man has a method peculiar to himself. I do not give a formal certificate once in twenty times. If there are any points about which a buyer needs to be informed, I write a simple letter stating the bare facts. If there is a possibility of a defect interposing ultimately with a horse's usefulness, I advise that a price shall be paid for the horse ; and in the event of the possible defect proving a reality within an agreed time (say three months), the seller shall take the horse back again on being paid hire for the use of the horse during the stated time. Where differences arise, I always advise the parties to refer the matter to arbitration, and the suggestion has generally been accepted. A veterinary surgeon's position, especially if he be a young man starting in practice, is a very difficult and delicate one ; but, come what may, honesty is the best policy, and it is always best in the long run to state candidly what you believe, never mind what the immediate consequences may be. In the eyes of the public, veterinary surgeons are too often considered capable of prevarication ; in plain language, therefore, call a spade a

spade. If a horse has a spavin, call it a spavin, and not simply an enlargement of the hock.

Professor WILLIAMS: Professor Walley's paper refers rather to snows in Scotland than in England. I am pleased to know that in England veterinary surgeons are frequently appointed to duties which, in the paper, it is stated they should be called upon to fulfil. I have been found fault with frequently by writers like "Macgregor," but I never take any notice of such effusions. I once condemned a horse, at a show in Scotland, for bad hocks, a horse whose progeny was noted all over the county for bad hocks, and was afterwards referred to as an eminent practitioner who had improperly disqualified this animal. I fully sympathise with Professor Walley in his opinion that the fees paid for examination are totally inadequate to the work and responsibility incurred; but this is the fault of the profession itself—there could, and should be, a definite understanding between members that should be strictly adhered to by all.

Professor ROBERTSON: Professor Walley has gone largely into the subject of the examination of horses. In my judgment, veterinary surgeons, as a body, are not the best judges of the fitness of horses for specific purposes; as experts they are well qualified for their duties, and should keep to the same. Professor Robertson then referred to the regulations in force at the Royal Agricultural Society's Shows, and at the Cart-Horse Show held in London. He further remarked: I always advise clients not to give a warranty for a horse when selling, but when buying always to obtain one when possible. I do not think the questions of soundness or unsoundness can all be settled unanimously, because men's capacities and abilities of judging differ. I strongly recommend arbitration in cases of difference in preference to a legal process.

Mr. CARTWRIGHT, Mr. SIMPSON, and Mr. BANHAM all spoke, after which Professor WALLEY replied to the criticisms.

At the close of the meeting, members and friends adjourned, by special invitation of the President, to a knife-and-fork tea at the Adelphi Hotel; after which a most enjoyable social evening was spent, when several toasts having reference to the profession were proposed and responded to in terms of brotherly kindness and good feeling, being interspersed with some exceedingly choice selections of music rendered with marked taste by the well-known Cantor Quartette. A red-letter day in the history of this Association was brought to a conclusion by all heartily joining in "God Save the Queen."

J. SUTCLIFFE HURNDALL, *Hon. Sec.*

MIDLAND COUNTIES VETERINARY MEDICAL ASSOCIATION.

THE fifty-seventh meeting of this Association was held at the Hopmarket Hotel, Worcester, on Friday, February 19th, 1886.

The chair was taken by the President, H. M. Stanley, Esq., and there were also present—E. Beddard, Hon. Sec., Wolverhampton; T. Chambers, Dudley; A. Over, Rugby; W. Carless, Stafford; H. L. Simpson, Windsor; H. R. Perrins, Worcester; F. Blakeway, Stourbridge; R. C. Trigger, Newcastle, Staff.; J. Malcolm, Birmingham; R. H. Cartwright, Wolverhampton; E. Meek, Walsall; F. H. Pinkett, Worcester; H. Collett, Westbromwich; George Smith, Tunstall; H. D. Pritchard, Wolverhampton; W. Drewitt, Gloucester; H. Olver, Tamworth; F. W. Barling, Ross; W. S. Carless, Worcester.

Letters of apology were received from Professors Williams and Walley, Edinburgh. Messrs. Gamgee, Birmingham; Verney, Stratford; Rossell, Sandiacre; Bland, Alfreton; Coe, Stoke; Pyatt, Nottingham; J. P. Burchall, Stanford; Moir, Cardiff; Price, Birmingham; H. J. Cartwright, Wolver-

hampton ; H. T. Barber, Rugby ; Cross, Shrewsbury ; Greaves, Manchester ; Wragg, London ; Hills, Leamington ; Barling, Hereford ; Wiggins, Market Harboro'.

The HON. SEC. read the minutes of the last meeting, which were approved and signed.

Mr. C. J. Reynolds (of Mansfield) wrote to the Treasurer, inclosing his own subscription, and added that his father had been dead two years.

Mr. G. F. Towlson (of Wingfield) wrote stating that his brother (Mr. H. A. Towlson) died in October last.

The TREASURER said that he was not aware that Mr. Reynolds and Mr. Towlson were dead.

On the motion of Mr. TRIGGER, seconded by Mr. SIMPSON, it was decided to express the sympathy of the Association with the friends of the late Mr. Reynolds, and to send a letter of condolence to the family of the late Mr. Towlson.

Mr. SIMPSON said, with regard to the deaths which had been brought to their notice, he thought it the duty of members of associations to do what they could to keep the register of the college in good order. Here was the case of a gentleman who had been dead two years, and his name was on the register still. The Act of Parliament was very precise on the subject. When a member of the profession died, it was the duty of his colleagues in the neighbourhood to send an intimation to the registrar of deaths for the district, who thereupon would send up to the Secretary, and the name of the deceased would be erased from the register.

The PRESIDENT (H. M. Stanley, Esq.) said it would be remembered that it was arranged that they should present some books to the Birmingham Medical Institute. The following have been sent :—Boardman's "Dictionary of Veterinary Art," 1805 ; Chauveau's "Comparative Anatomy," 1873 ; Dun's "Veterinary Medicines," 1882 ; Fleming's "Veterinary Obstetrics," 1878 ; Fleming's "Rabies and Hydrophobia," 1872 ; Fearnley's "Examination of Horses," 1878 ; Gamgee's "Our Domesticated Animals," 2 vols., 1884 ; Hill's "Diseases of the Dog," 1881 ; Hill's "Bovine Medicine and Surgery," 1882 ; Mayhew's "Horse Management," 1884 ; Morton's "Veterinary Pharmacy," 1870 ; McBride's "Anatomical Outlines of the Horse," 1867 ; Owen's "Anatomy of the Vertebrates," 3 vols., 1866-7-8 ; Percivall's "Anatomy of the Horse," 1858 ; Tuson's "Veterinary Pharmacopœia," 1880 ; Walsh Stonehenge's "The Horse in the Stable and the Field," 1883 ; Youatt's "The Dog," 1879.

The HON. SEC. laid before the meeting accounts to the amount of £20 os. 6d., which, on the motion of Mr. PRITCHARD, seconded by Mr. CHAMBERS, were passed.

The following gentlemen were elected new members of the Association :—Mr. Thomas Horton (of Warwick) on the motion of the PRESIDENT, seconded by Mr. MALCOLM ; Mr. Frederick Cann (of Bridgnorth) on the motion of Mr. PERRINS, seconded by Mr. CHAMBERS ; Mr. F. C. Golden (of Rugeley) on the motion of Mr. CHAMBERS, seconded by Mr. COLLETT.

Mr. BLAKEWAY presented the statement of accounts for the past year, and said the balance sheet was a very satisfactory one. The bank balance at the end of 1884 was £120 12s., the subscriptions paid for 1885 amounted to £81 10s., and after meeting their current expenses they increased their balance at the bank from £120 to £142 3s. 1d. (Applause.)

Mr. OLVER proposed that Leicester be selected as the place for the next meeting of the Association. Mr. OLVER seconded, and the motion was carried.

Mr. BLAKEWAY proposed Mr. Over as President of the Association for the ensuing year. Since he had entered the Society he had shown himself

prompt in his attendance at its meetings, and anxious to keep up good feeling and harmony amongst its members.

Mr. PERRINS seconded the motion, which was carried unanimously.

The Vice-Presidents elected were Mr. Beddard (Wolverhampton), nominated by Mr. OLVER, seconded by Mr. CARLESS; and Mr. Collett (Westbromwich), nominated by Mr. MALCOLM, and seconded by Mr. TRIGGER.

On the proposition of Mr. PRITCHARD, seconded by Mr. BARLING, Mr. Blakeway was reappointed Treasurer.

Mr. T. CHAMBERS was appointed Hon. Sec. for the ensuing year, and votes of thanks were accorded to retiring officers for their services in the past.

Mr. OLVER said he had great pleasure in nominating Mr. H. R. Perrins as their representative in Council. He had been a member for several years, and had attended to his duties very regularly, much to the satisfaction of the members of that Association, and he believed of the Council too. The post was no sinecure, but demanded a man who was able to get away from the active duties of his profession, who was willing to put his hand in his pocket, who was clear-headed, and who understood veterinary politics. In those respects, they had as good a man as they could find in Mr. Perrins, and he hoped they would carry their man.

Mr. BARLING seconded.

Mr. BLAKEWAY, in supporting the proposition, said the office of Councilman was one which was best filled by a man who had already served for some time in the capacity, as Mr. Perrins had done. He suggested to the Association that they must be united in supporting their nomination.

The resolution was carried unanimously.

Mr. PERRINS responded.

Mr. SIMPSON congratulated the Association on the nomination they had just made.

Mr. TRIGGER then read a very interesting paper on Parturition.

The PRESIDENT, in opening the discussion upon the paper, said it was one of great interest. He trusted some of the country practitioners present would relate some of the results of their experience for the benefit of the town members.

The discussion was carried on by Messrs. PERRINS, CARLESS, SMITH, OLVER, SIMPSON and CHAMBERS.

Mr. TRIGGER replied upon the discussion, and a vote of thanks was accorded to him for his paper.

A vote of thanks was also passed to the President, and subsequently the members of the Association dined together.

THOMAS CHAMBERS, *Hon. Sec.*

LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

THE usual quarterly meeting was held at the Blackfriars Hotel, Manchester, on Wednesday, March 10th, 1886.

Present :—Thos. Briggs, Esq., President, Peter Taylor, Thos. Greaves, W. Whittle, W. Dacre, A. Darwell, Jas. Ashton, J. S. Hurndall, H. Ferguson, J. B. Wolstenholme, J. F. Dixon, E. Faulkner, W. A. Taylor, Saml. Locke, A. Lawson, T. Hopkin, J. Faulkner, W. Woods, junr., and J. W. Ingram.
Visitors :—Drs. Liptrott, Wigan, and A. B. Wren, Manchester.

Letters of excuse for non-attendance were received from Professor Williams and Messrs. Simpson, W. Thompson, J. Lambert, H. Olver, G. Gartside Mayor, and A. Leather.

A letter was received from G. Gartside Mayor, of Kirkham, saying that

he would read a paper on "Hypodermatic Medication," at the next meeting, to be held on Wednesday, June 9th, 1886.

It was proposed by Mr. DACRE, seconded by Mr. GREAVES, that the minutes of the last two meetings be taken as read, having been published in the *Veterinarian and Journal*. Carried.

Mr. WOODS, junr., proposed, seconded by Mr. P. TAYLOR, that Mr. Geo. Ellison, Clitheroe, be a member of this Association. Carried unanimously.

Mr. FERGUSON proposed, seconded by Mr. T. LOCKE, that Mr. J. F. Disin, Warrington, be a member of this Association. Carried unanimously.

Mr. BRIGGS nominated Mr. J. Ainsworth, M.R.C.V.S., Bury, and Mr. WOODS, junr., nominated Mr. J. W. Bennett, M.R.C.V.S., Leigh, as members of this Association.

A discussion then took place upon the coming election of Members of the Royal College of Veterinary Surgeons. It having been decided at the annual meeting that this Association do not nominate a candidate, it was resolved to co-operate with the Liverpool and Yorkshire Associations as usual.

A motion was then proposed and carried, with a small majority, some of the gentlemen abstaining from voting, that if the candidate of the Midland Veterinary Medical Association would pledge himself to vote for the repeal of the 9th Clause in the Charter of 1876, he should receive the support of this Association.

Professor Axe not being in attendance, and having failed to send any particulars respecting his projected plan in connection with the establishing of a new veterinary periodical, a lengthy but necessarily desultory discussion, in which many members took part, ensued. A pretty general complaint was indulged in, that the present publications did not do full justice to the matters discussed at the Veterinary Medical Associations throughout the country. It was the general expression of the speakers, that, under existing circumstances, the two journals now in circulation were working at great disadvantages, and that something was wanted in the way of reporting the discussions, which were often of as much importance as the papers read, and also that the Secretaries were working under difficulties in having no short-hand writers.

Mr. GREAVES proposed, seconded by Mr. A. LAWSON, that the discussion of this question be adjourned until the next meeting.

The PRESIDENT (Mr. T. Briggs, of Bury) exhibited a modified model of the "lethal chamber" for painlessly destroying the lives of dogs (by anæsthesia) as originated by Dr. Richardson, of London, and put into practical use by him at the Dogs' Home at Battersea, London.

The model consisted of a double-lined wooden box, with the sleeping-gas producing apparatus at one end. A rabbit was put into this box or chamber, and by means of a pair of bellows the air was pumped from the chamber containing the rabbit through a Woolf's bottle, half-filled with the anæsthetic fluid—a mixture of chloroform and bisulphide of carbon—and in a couple of minutes the little animal was unconscious. It was lifted out of the chamber and placed in the ordinary atmosphere, where it soon became lively again. It was after a time replaced in the lethal chamber, and in a very little over a minute was sleeping soundly. The rabbit being simply lent for the purpose of exhibition was not allowed to "sleep to death," and was consequently again removed from the chamber and put into its basket. It was not long before it regained full possession of its limbs.

Mr. Briggs went on to explain that having been long desirous of instituting a more satisfactory system of "doing away" with dogs, he had recently taken an opportunity of visiting and thoroughly inspecting the appliances at the "Dogs' Home" at Battersea. He had since had constructed a somewhat

small lethal chamber, but big enough to hold an ordinary large-sized dog. After submitting some fourteen or fifteen dogs and cats, he had come to the conclusion that the lethal chamber was something more than a scientific or sentimental toy. He must admit he was not favourably impressed at first. The only drawback seemed to be that whereas in prussic acid poisoning, which is the usual and most expeditious system of killing dogs, death, providing the acid was good, took place in a remarkably short time, a minute being in some cases sufficient, by Dr. Richardson's system, however, the time before life became extinct was much longer, from ten to twelve or fifteen minutes ; but the animal is sleeping nearly the whole of this time. Mr. Briggs said it was a cruel and hard proceeding to thrust prussic acid into a dog's mouth, and to stand idly by watching the poor poisoned animal struggle and die in contortions and spasms, let the time be only half a minute. He was, after careful and complete consideration of the question in all its bearings, greatly in favour of the lethal chamber, and thought it ought to be employed by veterinary surgeons instead of prussic acid. One pleasing feature is, that a dog "slept to death" remains afterwards as if in ordinary sleep, and has none of that rigidity of limbs which follows death under most circumstances.

A cordial vote of thanks was accorded to Mr. Briggs for bringing the mode before the Association.

BORDER COUNTIES VETERINARY MEDICAL SOCIETY.

THE annual meeting of the above Society was held at the Great Central Hotel, Carlisle, on Friday, February 26th, 1886. The gentlemen present were Messrs. Roberts, Harrison, John Bell, James Bell, Jacob Howe, Pears (Penrith), Walker (Kirkby Lonsdale), Ashley (Wigton), Joseph Carlisle; Professors Williams and Lewis ; Messrs. Kenall (Barrow), Macintosh (Dumfries), Young (Exmouth), Hoadley, Chalmers (Longtown), Tallentire (Skelton), Joseph Donald (secretary).

Apologies were received from all the members not present except one.

Minutes of previous meeting were read and confirmed.

Mr. HARRISON proposed a vote of condolence to Mr. Thompson and family on the loss of his son. Mr. ROBERTS seconded the vote, which was carried unanimously.

The SECRETARY asked for instructions as to its being written or printed. Mr. HARRISON proposed that it be printed. Mr. CARLISLE urged that it be properly executed, and this was agreed to and left in the hands of the Secretary.

Mr. DONALD nominated Mr. Hoadley for membership. He also begged to give notice that at next meeting he would move that this Society purchase the following instruments for use of the members, "Ecraseur," "Set of Trephine Instruments," and "Thompson's Tooth Shears," and that they be lodged with the President or Secretary, and lent to the members on conditions to be hereafter agreed upon.

Mr. ROBERTS proposed that Mr. Thompson and the other office-bearers for the ensuing year be inducted. This was done, and Mr. Thompson took the chair vacated by the retiring President, Mr. Carlisle.

Mr. HARRISON moved that the next meeting be held at Penrith, which, amongst other advantages, would enable the members at Darlington and Stockton and the east country to attend more conveniently.

Mr. PEARS seconded the motion, which was carried unanimously.

Mr. THOMPSON : The next business is the consideration of the next Council election, *i.e.*, to fix upon the candidate to be supported for membership of the Council. He suggested that this Society follow in the footsteps of the Scottish Metropolitan Society, and support whom that Society brought forward.

Mr. ROBERTS proposed that, as we could not run a candidate ourselves, we should add our strength to the Scottish Metropolitan to effect the object they had in view.

Mr. HARRISON asked if the Scottish Metropolitan candidates were Fellows or members.

Mr. THOMPSON replied, and, as to one of them (Mr. Elphick), he was nominated for the purpose of testing the legality of Clause 9 of the new charter.

Mr. HARRISON was of opinion that Clause 9 should be rescinded—its terms were absurd—and moved that Mr. Elphick be supported.

Mr. MACINTOSH spoke in favour of this motion. We had too much of the London element on the Council.

Professor WILLIAMS thought it of the greatest consequence that Mr. Elphick be returned. Mr. Campbell, one of the candidates of the Scottish Metropolitan, is a Fellow. Last year we returned Mr. Mulvey, who was pledged to fight this question, but he had in the meantime unfortunately become a Fellow. This 9th clause was the greatest blow that was ever dealt the profession. It robbed every member of his birthright. He thought Mr. Elphick would never become a Fellow until this question was settled. He could not see why 3,000 members should be overruled by 150 Fellows.

Mr. BELL thought the motion did not correctly represent our views, and moved that we do support Mr. Elphick in his candidature for a position in the Council. He would not support a Fellow along with a member.

Mr. DONALD was of opinion that this Society should not pledge itself to support any one before his views were before them. He was in favour of men who would maintain the right of members, but would still maintain the Fellowship degree.

Mr. MACINTOSH said we knew Mr. Elphick was not a Fellow, and by electing him we would show disapproval of the clause, and Professor Williams said Mr. Elphick was pledged to oppose it.

Mr. ROBERTS withdrew his proposition.

Mr. TALLENTIRE supported the motion, which was carried unanimously.

Mr. DONALD called attention to the incorrect registered addresses of some of the members, and advised that members look through the register and get them put right, so that the voting papers might be received correctly. A large number of votes were lost last year from this cause.

The SECRETARY read the letter from the North of England Society on the publication of a new veterinary periodical, which asked for a guarantee by the Society of £10.

The CHAIRMAN said the Scottish Metropolitan Society had had this before them. An idea seemed to be current that there was not sufficient printed material. For himself, he was of opinion that, while this Society should not commit itself, a journal might be commenced by a company with limited liability.

Mr. MACINTOSH thought the Society ought not to embark on such a scheme.

Mr. HARRISON moved that this Society reply that it cannot see its way to support the scheme.

Mr. CARLISLE thought the scheme was premature. Our proceedings and interests were sufficiently represented by existing periodicals.

Mr. DONALD, while desiring to see a weekly or bi-monthly journal, said that, so far as regards this Society, every word had been published that was sent, and if there was any fault, it lay with him, and not with the journals.

Professor WILLIAMS thought it might be a gracious act to contribute £10 for a year if the other societies would do so.

Mr. Harrison's motion was put and carried unanimously.

Mr. DONALD read the letter from Mr. Mulvey referring to the Fellowship clause.

Mr. MACINTOSH thought we ought determinedly to exclude every Fellow from the Council until such time as we had accomplished our object—a view in which many of the members present seemed to coincide.

The CHAIRMAN read his presidential address as follows :—

Gentlemen,—Man, being the creature of circumstances, often finds himself placed in a position for which he never sought ; had no control over ; or wished to occupy ; in fact, he has the situation forced upon him without any choice or selection of his own. Such, gentlemen, is my position on the present occasion. It is with no small amount of diffidence that I now accept the Presidential Chair of the Border Counties Veterinary Medical Society ; knowing full well that there are other members in our little circle who are more suitable, and who could fulfil the office more ably than I can ever hope to do. But seeing that it is your wish that I should be your president this year, I shall endeavour to do my duty as far as I am able ; trusting you will overlook any shortcomings, and by your patience and kindly feelings assist me in carrying out the work in a satisfactory and efficient manner, as the duties of a president can be made either light and pleasant or heavy and irksome, according to the conduct of the company over which he is called upon to preside. I assure you it is with the deepest feeling of gratitude that I accept the mantle of office which adorned the form of our worthy ex-president, who so ably presided over us during the past two years. To follow in the footsteps of the oldest and first *qualified practitioner in the county* is no small honour—a practitioner who could at one time look from “the throstle nest of all England,” to the East, to the West, to the North, to the South of Cumberland, and say, “I am monarch of all I survey.” What changes since then ! what tales he could tell ! What startling pictures of his practical works he could draw ! Pictures which would put our great experts into the shade. His gigantic mind, his powerful will, and his stalwart form are things to be envied ; and, although he has reached the “three-score years and ten,” he still shows more enthusiasm and energy than the majority of the members of our profession. Witness the remarkable energy and ability he displayed in the Hernia case which he was so good as to bring before us ; and he gave a practical demonstration unprecedented in the annals of Veterinary Associations. There are too few men like our friend Mr. Carlisle, for, when the formation of the Border Counties Veterinary Medical Society was projected, he entered heart and soul into the scheme. He did not look upon it as a money-making concern, but as the means whereby he could assist to further and develop the profession he loved so well, and thereby benefit the community. But, gentlemen, any eulogy that may fall from my lips will sound poor, when compared with the substantial recognition he received on New Year’s Day, 1867. If any of you have the *Veterinarian* of that date, I ask you to refer to page 218, and you will find in what estimation Mr. Carlisle was held by the farming community of Cumberland, for on that day they presented to him a gold watch, a beautiful silver tea-service, and a purse of gold. May I be allowed to ask, Which of you has earned such a diploma from the great examiners, your employers ? We all lack the amount of energy and enthusiasm which our ex-president possesses ; he really and honestly sets us a great and good example ; he has not missed one meeting since the formation of this society. And, what are these societies for ? They are to bind us together as a brotherhood, to rub off that petty jealousy which small and weak minds have towards each other ; to do away with all prejudice and ill-feeling which may exist ; to exchange ideas, and to help us to feel interested in and assist each other.

We are not all born alike : each has his sphere of usefulness in the great

field of nature. We are all workers in that field, and therefore we should stand by each other with closer bonds of fellowship. In the words of the poet, I may say—

“ Let us stretch forth our hand like a brother ;
Remember that life's but a span ;
'Tis our duty to help one another,
And do a good turn when we can.”

And now, having alluded, though very inadequately, to the excellence of our late President, I shall, with your permission, briefly review the work which has come before the Society since its formation.

First we had the President's address, which was followed by a Paper on “Strangles,” by Professor Walley. I do not intend to enter into details of the various subjects, but to bring just a few practical points before you. Strangles, as you all know, are very common to young horses, particularly during the period of dentition, and are looked upon by some as of little importance. But, if neglected and allowed to have their full scope, what losses they bring to the breeder ! How many valuable animals are rendered useless by becoming “Roarers” through neglect of protracted Strangles ! This is of itself quite sufficient to call for every care and attention. And how often do we find abscesses form in the brain from exposure and want of care at the beginning ! That warmth, good ventilation, and generous diet are necessary none will deny ; but there are cases which call for more energetic and surgical treatment. I refer to the operation of tracheotomy. This operation is of the greatest importance, both as to *when it should be done*, and *how it should be done*. Firstly, how it should be done. Some recommend slitting the rings of the windpipe and introducing the tube. Others say : “Cut a piece out of the tracheal rings.” Now I have tried both methods, and find that the best way is to remove a small piece of the cartilage. This avoids pressure, and keeps the tube in position without much irritation ; whilst slitting the cartilage only causes pressure and discomfort to the patient, and usually ends in stricture of the windpipe. Secondly, as to when it should be done. This is of vast consequence. Here is the life, probably, of a valuable animal in our hands, and, by not operating at the right moment, we may render it almost useless.

The next thought is, Will the animal be of much value if the operation is performed ? These are matters of serious consideration. Let us for a moment look at the result of the operation in question. Immediately you open the windpipe, the air rushes into the lungs, and the animal loses all sense of suffocation. Since Professor Walley read his interesting Paper, I have performed the operation four times. The whole of the four cases were extreme ones, and in all of them, when the animals took linseed jelly or milk, while in the act of deglutition, a small portion of these fluids trickled down the tracheotomy tube and ran in a continuous stream, which was about the thickness of a small straw. I named this circumstance to two of our great experts ; they seemed incredulous of what I was saying. One of them went so far as to remark :—“Harry, I don't want to say you are telling a lie, yet I don't believe you.” It is nevertheless a fact, and one which can be borne out by members present. Now this is a matter of great importance, especially to young practitioners, as they might be much alarmed in such cases after they had performed the operation, and consequently I wish to call your attention to this interesting part of the subject. There need not, however, be any apprehension of alarm, as far as the exit of the fluid through the tube goes. In my opinion, the animal, in losing the sense of suffocation after the operation is performed, having a free accession of air to the lungs, is more inclined to take food, and is not so much afraid to swallow ; therefore, the *fluid which we see passing down the nose in cases that have not been operated upon, passes down the trachea in the cases that have been operated upon*. It thus becomes a great question

whether we should do it early, or not until the last extremity. Owing to the large quantity of mucous secretion which lodges at the top of the windpipe, and due to the irritation caused by the abscesses in the locality, if the operation is not performed, this secretion has no means of exit ; therefore it must pass down the trachea into the bronchial tubes and cause Congestion and Inflammation of the Lungs. Therefore, I say, operate on early, and allow the secretions and fluids to escape through the artificial opening, and have the animals placed in well-ventilated boxes, supplied with nutritious food and kept warm, with a good, smart blister applied to the throat (I do not believe in poultices) ; and, as to medicinal treatment, give 15 drops of hydrochloric acid and 2 drams of chlorate of potass twice a day in their drinking water.

Hoose and Diarrhœa.

The next paper was by myself, and dealt with the malady of "Hoose and Diarrhœa in young animals," when our friend, Professor Williams, kindly attended, and gave us some beautiful microscopic illustrations of sections of the lungs, containing Strongyles ; also sections of livers that had undergone fatty infiltration and fatty degeneration, and upon which he commented at some length. Alluding to the cause of Diarrhœa in sheep from the presence of Strongyles in the stomach, I may remark that, as you all know my views on these diseases, I do not think it necessary to make any further comments, except that I still urge the necessity of housing young cattle at night, giving good food, dry shelter, and the application of salt to the pastures. The number of young animals that still continue to succumb yearly to these disorders is a cause quite sufficient to incite the members of the profession to take active measures in the way of prevention. When the symptoms are once developed, and the diseases fully established, very little can be done by medical treatment.

Chloroform.

Mr. Roberts, of Kendal, next favoured us with an article on "Chloroform," a paper full of interest, and one which I am glad to see is to be again brought forward at the annual meeting of the National Veterinary Medical Society, to be held at Edinburgh next summer. I have not yet tried the drug on horses or cattle, but have operated on a large number of dogs which have been under its influence, and the cases have all had a successful termination. If it were more extensively used, the article would prove highly beneficial to the suffering brute creation, and would give us a more important standing with the community, and assist us to perform our operations more neatly, more surgically, and in a more humane manner.

Hernia.

The next subject was the case of Hernia operated upon by our late President, Mr. Carlisle and Professor Williams. Anæsthesia in the animal was produced by Roberts' method of administering chloroform. Professor Williams afterwards reviewed the case, and gave some valuable information on the subject.

Fever.

Following this was an excellent paper by that very energetic and enthusiastic veterinary medical practitioner, Mr. Thomas Greaves, of Manchester. It is a well-known fact that Mr. Greaves has a deep and fond passion for the profession, and strives with all his might to further its progress, for, not only does he spend a large portion of his time in preparing and reading papers at various societies in the United Kingdom, but he also contributes largely to the veterinary journals ; and when that worthy man came all the way from Manchester to favour us with his useful and practical remarks on such an interesting subject as Fever, I was not only sorry but grieved that so few

of our members could find time (or were inclined) to come a comparatively short distance to hear what he had to say.

With reference to this paper, I may say that it was of vast importance. We have it stated that there are two kinds of fever, Idiopathic and Sympathetic. Now, for my part, I frequently ask myself the question: Is there such a thing as Idiopathic or Simple Fever? All fevers have their origin from some cause or other, and it is quite possible that some change of structure in a remote part of the body may so disturb the constitution as to produce what we call Simple Fever.

We treat the symptoms as such, yet leave the remote cause still in operation. However, whether suffering from Simple or Compound Fever, when first called in, if I find the animal with high temperature, a hot mouth, a full bounding pulse, and dark red eyelids—or, it may be that the pulsation is scarcely perceptible and oppressed—with mucous membrane of the eyelids highly injected, respiration hurried, and expired breath condensing immediately it leaves the nostrils, I should have no hesitation whatever in drawing blood. This may not meet the views of some, but it is nevertheless a fact that, by *bleeding*, the overloaded state of the system is relieved and the pressure on the nerve centres is removed, acting as a systemic tonic, and giving nature a chance of restoring herself, keeping the disorder under control until the medicines have had time to establish their action. You all know perfectly well that, in extreme cases, very little reliance can be placed in many of our drugs, and if the patient has not the material within itself wherewith to combat the disease, very little can be done with our so-called physic. Well might Shakespeare exclaim, “Throw physic to the dogs; I’ll none of it.” If bleeding has to be resorted to at all, it ought to be done at the onset, for by waiting, even a few hours, the blood becomes changed and fibrinised, particularly in overgrown and overfed animals. Then when fibrinisation commences, and the deposits begin to take place in the heart, and the animal is sinking, you are nonplussed, and do not know what to do next. You may perhaps fly to bleeding, but, being too late, you only help the animal away by increasing the fibrinogen of the blood. In many country places, when the animals die, the *post-mortem* reveals the fact that the heart is full of yellow-coloured fibrine, which the old empyric practitioners who abused the bleeding designated as “Grease at the heart.” Therefore I say again, if this is to be done at all, it is best done at first. Delay is dangerous. This has often come under my own observation.

“*Kumree.*”

At our last meeting, our late president, Mr. Carlisle, gave us an article on Dental Paralysis, or what he designates Kumree.

Again I have to complain of the great want of interest most of the members of our Society took in the paper. I was sorry to see such a meagre attendance on that occasion. It gave me great pain, I can assure you, to see such a want of courtesy shown towards a man who had reached the age of our esteemed ex-president, and who had found time, amidst the turmoil of an extensive county practice, to write an article and bring it before our Society, more particularly when he, from a life-long practical course of observation, understood the subject so well. To say the least, it was an act of ingratitude towards Mr. Carlisle, and showed a want of real interest in the profession.

This disease is of very frequent occurrence, and renders useless many valuable animals, and various theories have been promulgated as to its cause. But the one brought forward by Mr. Carlisle was new and quite original on his part, viz., that of Protracted Dentition. On reflection we find that a number of children suffer greatly when teething, and are not infrequently subject to fits, which, if continued, leave the little sufferers more or less

subject to some nervous disease, and possibly may be the remote cause of that frightful affliction, St. Vitus's Dance. If this be the case in certain constitutions in the human subject, I don't see why it should not be the same with the brute creation, when suffering from the same cause, Dentition ; and that, through the reflex action, the brain may become affected, and a nervous complaint such as Kumree be the result. Even a lesser degree of injury done to the nerve-system might produce those peculiar disorders known as Chorea and Stringhalt, for it is very seldom that we hear of or see these nervous complaints until after the second or third year. It is therefore quite possible that the origin of these diseases is in Protracted Dentition. At the time I was so much struck with the theory that I could not call to mind cases which had come under my observation. Since the meeting I have remembered two or three very interesting ones, and at the present time, I have a colt rising three under treatment. I have not yet had the animal cast to examine its teeth, the owner not being willing ; but the horse will not allow any one to touch his mouth. When trying to do so I had the pleasure of having the fore-foot planted over the region of my stomach. I am giving bromide of potassium and sulphate of iron every other day. The animal is feeding well, but when it gallops or trots it has a peculiar bobbing sort of action in the hind quarters. Another case which I had was a mare rising three, and she was so much affected that she used to become quite powerless and fall with her legs doubled up as if she had been shot. At times, when made to trot, she had a roundabout action in the hind legs ; and when put to gallop she had a bobbing gait in her hind quarters, and on stopping suddenly was like going heels over head, and at times quite blind. This case was brought from Skinburness Marsh ; bromide of potassium and iron were given, and she is now as well as any one could wish. Another mare also rising three was similarly affected. I thought it was going to be Shivers. She also was put under the bromide and iron treatment. She is now six years old and all right, having been twice passed by two qualified veterinary surgeons as being sound. If this disorder be a nervous one, I cannot see the force of depletion and the use of diuretics or purgatives, and the only way of treating the disease with success is to administer nervine tonics—that is, if it be from reflex nervous action.

Our worthy Secretary, Mr. Donald, also gave a short article on the liability of veterinary surgeons, on examining horses as to soundness. This is also a matter of very great consequence to the profession in these times of progress, and is one that ought not to be set aside so lightly, seeing that any one of us might become entangled in a case of litigation through doing the very best for one's clients.

I have now touched briefly upon several important and practical points contained in the Papers which we have previously had before us. I think they are worthy of further discussion, so that great benefit may be derived from them by the profession.

Before closing, I should like to say a few words in reference to the ninth clause of the Supplementary Charter. This clause has given rise to much unpleasantness. Is it not possible that it can be allowed to stand as it is without being rescinded ? as the cost of doing this would be something enormous. By an Act of Parliament, unqualified men who had been practising veterinary medicine for five years prior to the passing of the Act were registered as existing practitioners on the payment of one guinea. Could not some provision of this kind be made for conferring the Fellowship Diploma ? I think it might be arranged somewhat in this way : say, members of the Royal College of Veterinary Surgeons, who had been in practice five years prior to January, 1885, might be registered as Fellows of the Royal College of Veterinary Surgeons on the payment of, say, seven guineas, more or less, without being subject to an examination. I feel confident that there are many who would

join the Fellowship, and who are well qualified to do so, but who have neither the time nor the inclination to undergo the trouble of preparing for an examination, particularly so when they remember that the first Fellows were self-constituted.

Concluding Remarks.

In conclusion, I must claim your kind indulgence if I have trespassed too long on your time, trusting any remarks which I have made may meet with your approbation. I should like to see our little Society go on and prosper, for it is well known that the hardy Northerner, owing to climatic influence, is slow in perception, but when once a subject is grasped, it is difficult to dislodge it. Therefore, although our Society was about the last in the field, let us endeavour to maintain the old adage that "Canny auld Cumberland caps them a' still." I ask you one and all to unite as a body, to assist and stand by one another in times of difficulty and oppression; for remember, gentlemen, that—

“ So brief our existence, a glimpse, at the most,
Is all we can have of the few we hold dear ;
And oft even joy is unheeded and lost
For want of the heart that could echo it near.
Ah ! well may we hope, when this short life is gone,
To meet in a world of more permanent bliss,
For the grasp of the hand, or a smile hasting on
Is all we enjoy of each other in this.”

Such, gentlemen, I'm sorry to say, has been the sad lot of our esteemed ex-President and that of your humble servant. But—

“ There is no armour against fate ;
Death lays his icy hands on kings.”

We bow to the decree with fortitude and resignation.

Professor WILLIAMS thanked the President for his eloquent address, but, notwithstanding the respect he had for Mr. Thompson, he could not agree to the Fellowship clause suggested. He proposed a hearty vote of thanks to the President.

Mr. MACINTOSH seconded it. He desired that the Fellowship should remain an honorary distinction.

Mr. BELL supported the vote of thanks and discussed the Fellowship clause. He thought that if the Council had the views of the profession before them, they would probably endeavour to rescind the obnoxious resolution.

Mr. HARRISON suggested that the Council ought to be able to amend the new charter, as an Act of Parliament was amended.

Professor WILLIAMS put the motion to the meeting, and it was carried unanimously.

The CHAIRMAN returned thanks.

He asked the members as to their observations, while performing tracheotomy, of the fluid flowing through the tube to the ground, as his statement to that effect had been received with hesitation.

Mr. CARLISLE had observed it on several occasions.

Professor WILLIAMS had over and over again performed tracheotomy, and had horses working now with the tube, and had not observed what had been described.

Mr. CARLISLE knew cases where animals wearing tracheotomy tubes bred calves.

Mr. HARRISON referred to the danger of the falling in of the circular piece of skin cut out, and made a suggestion which might avert it.

Mr. MACINTOSH had not observed this fluid coming through the tube.

Mr. BELL had found it very common indeed, and thought that the fact was generally known in the profession.

The CHAIRMAN said the next business was the resumed discussion on Mr Carlisle's paper on "Dental Paralysis" read at last meeting.

Professor LEWIS read the paper in the Journal, with considerable interest, referring to the tooth found on the temporal bone. Substances of that kind had been found in equally unlikely places. He was not surprised at Mr. Carlisle's conclusions that the disease could be caused by irritation during dentition. It was a well-known fact in medicine, that infantile Paralysis is frequently caused by dentition, and he referred to cases; one case was Paralysis in the right arm and the presence of diseased molar tooth. The surgeon thought that possibly the Paralysis was due to the tooth, which was removed, and the Paralysis disappeared instantaneously. All the cases were similar as to the action between the tooth and the brain; it appeared the Paralysis was due to reflex action. We knew that a collection of irritant or indigestible matter in the stomach would cause Paralysis in old animals. Not necessarily food, but worms in dogs will give rise to it. He explained the theory now accepted as to Paralysis due to reflex action. He thought we might account for Paralysis during dentition, by the irritation in the mouth being conveyed to the brain and back by the inhibitory nerves to the muscles.

Professor WILLIAMS: The observations had not enabled him to come to any conclusion; but from what he had read of human medicine, and from what he had seen of dogs, he thought Mr. Carlisle was moving in the right direction. He advised that careful observation should be made of Stringhalt and allied affections.

Mr. HARRISON endorsed Professor Williams's remarks on Mr. Carlisle's paper.

Mr. CARLISLE said the illness went on for a long time. They never saw Kumree in animals after process of dentition was accomplished. He found the best treatment was to put in a seton and apply an active blister; in some cases, bleeding from the temporal artery. He referred to the disease known in Scotland, "Jumping holt" in sheep.

Mr. THOMPSON reviewed the discussion.

Mr. HARRISON suggested that Mr. Carlisle should examine the teeth, and, if they were decayed or bad, to run a knife round them, etc.

Mr. CARLISLE said the teeth often showed nothing.

Mr. HARRISON proposed a vote of thanks to Mr. Carlisle.

Professor WILLIAMS seconded this, and referred to the vote of condolence which had been passed before his arrival.

Mr. THOMPSON returned thanks.

Mr. CARLISLE also returned thanks for the kind remarks made and the interest shown on the subject of his discourse.

The annual banquet was held immediately after the meeting.

ROYAL COUNTIES VETERINARY MEDICAL ASSOCIATION.

THE general annual meeting of the above Association was held at the Great Western Hotel, Reading, on Friday, the 26th February last, James F. Simpson, Esq., President, in the chair. There were also present thirty-six members and visitors, including J. Roalfe Cox, Esq., President of the Royal College of Veterinary Surgeons; Thomas Greaves, Esq., Manchester, etc.

The routine business having been transacted, Messrs. M. J. Harpley, F.R.C.V.S. (London), H. R. Perrins, F.R.C.V.S. (Worcester), F. Raymond, F.R.C.V.S., A.V.D. (London), and Mr. A. A. Jones, M.R.C.V.S., A.V.D. (London), were unanimously elected members of the Association.

On the proposition of Mr. KIDD, seconded by Mr. FLANAGAN, it was unanimously resolved that the next place of meeting be at Hungerford; and Mr. Kidd was thanked for his kind invitation to the members.

A long and interesting discussion took place upon a lecture given by Professor Pritchard at the last meeting of the Association, on the subject of "Stable Management."

Mr. WALKER opened the discussion. He did not think it practicable to have thatched roofs in towns, and did not see that they had the advantages claimed. As to ventilation, all the egresses should be at the top of the building. He quite agreed with the Professor as to drainage. He agreed also that no litter excelled straw, whether long or short, and he objected very much to moss litter. He noticed that Professor Pritchard did not object so much to sawdust ; but, in his opinion, whatever objection there was to moss litter applied equally to sawdust. Horses that had stood on sawdust for months often came up in the autumn with scarcely any frogs at all.

Mr. W. G. FLANAGAN said some thirteen or fourteen years ago he and his partner built an infirmary to accommodate some thirty horses, and used ordinary slate roofing. During the next summer (a hot one) they found the stables almost unbearable for the horses, particularly to those suffering from disease. At the suggestion of a friend, they laced the inside of the slates with straw, and now the stables were as comfortable, both winter and summer, as it was possible for stables to be. He did not agree that there was anything particularly detrimental in sawdust. He knew several owners of large studs, and also several leading dealers, who used sawdust when straw was so dear five or six years ago ; and whilst in attendance on those studs he never saw any serious results, a little ordinary care being given to the feet. If horses were turned into boxes in April or May, and their feet were not looked at until August or September, whether they stood on straw, moss litter, tan, or sawdust, they must get diseased feet. Sawdust was very useful, especially with gross horses, as they did not then get a lot of lumber about them to work off at the expense of their legs. (Hear, hear.)

Mr. ROALFE COX said he remembered a large establishment in which moss litter was tried, seventy horses standing on it, and seventy on straw, and cases of lameness continually occurred among the former. The horn on the sole of the foot underwent a peculiar change, being softened ; it pared very much like cheese-paring, and as they got lower there was a peculiar violet-pink stain on the horn. In some of the cases which were not treated at once, the vascular tissues had swollen and congested, and assumed a condition something like canker, but without the tendency to fungoid growth ; but there was great suspicion of an unhealthy discharge, and an entire indisposition to secrete horny matter. Fifty per cent. of the horses on moss suffered in that way.

Mr. BARFORD said the air of the stable was decidedly sweeter with moss litter than with straw, owing to its extraordinary absorbent qualities.

Mr. G. A. LEPPER fully endorsed Mr. Cox's remarks about moss litter ; but he had not seen any ill effects from its use in the summer, when the horses had been lying in open sheds. He entirely agreed with Professor Pritchard as to roofs and drainage ; but as to flooring he thought the grooves should not be more than one-eighth of an inch deep. He had found the bricks used at railway stations very satisfactory.

Mr. MARTIN had never found the effects described by Mr. Cox from the use of the moss litter. As to feeding, they must give beans and peas if they wanted hard work ; but he considered oats the dearest thing they could feed upon. He had found soaked maize, mixed with peas or beans, very economical, fifteen pounds of it being equal to twenty pounds of oats.

Mr. DREWE had never seen ill effects from moss litter. Sawdust was a very good thing used judiciously. He preferred oatmeal for gruel, but used flour if he could not get it. Maize was very good for animals that had only slow work to do, but where they required fast work he advocated oats and beans. He had no doubt maize and barley aggravated foot-lameness.

Mr. KIDD agreed with Professor Pritchard as to ventilation and drainage. With regard to moss litter, he had noticed two kinds. (Hear, hear.) He had not observed any bad effects when the horses stood on the light-coloured moss; but where the dark colour was used he had seen the diseased condition of the hoofs, as described, and lameness to occur. He believed feeding should be regulated according to the animal and the work it had to do. For the road or the hunting-field, he thought no food was better than oats and beans; and it was his experience that a less quantity of oats, over forty pounds natural weight per bushel, produced better results than a larger quantity of oats under forty pounds. He did not think maize injurious for slow work, although personally he did not like it in any way. He thought water should be constantly beside the horse in his box. (Hear, hear.) After a long journey the temperature of the water should be raised to about blood-heat, and the horse should have a fair supply in reason.

Mr. WRAGG confirmed Mr. Cox's remarks as to the effect of moss litter on drag horses. They did not lie down on it to rest. He had noticed that the floor under it became very warm. He preferred a floor of granite cubes, and would not have a fall of more than one inch in the whole floor. He advocated water being constantly by the horse, particularly as then they were not tempted to drink out of strange troughs, and so Farcy and Glanders were avoided. (Hear, hear.)

Mr. DARLING said a layer of the Willesden paper and felt between the boards and tiles made an admirable roof, the only objection being the expense.

Prof. PRITCHARD, in reply, said his argument was that the horse should be watered before being fed, for this reason, the horse's stomach is a small one, so that if the water were given first, it soon passed into the intestines, and the stomach was thus left free to deal with the solids without any dilution of the gastric juice, thus avoiding indigestion. There were, in his opinion, several objections to the water being always by the horses, not the least being its liability to become fouled. At the same time, the horse was less likely to drink from outside troughs, to which he believed nine-tenths of the cases of Glanders in London were due. (Hear, hear.) He said, with regard to the dandy brush, his only objection to it was that instead of cleaning a horse properly with the body-brush, wisp, sponge, and rubber, grooms would often use the dandy-brush alone. He still held the same opinion of moss litter—he hated the sight of it. He positively denied that it was a disinfectant. He was not an advocate of sawdust, but it was preferable to moss litter, as it did not cling to the feet. He thought oats that naturally weighed forty pounds or more a food they could not improve upon; but they were often "made up." He had known a number of cases of Laminitis from giving horses raw flour gruel after a long day's hunting. They knew that wheat would produce the disease, and although they did not know why that was so, it was clear that flour—ground wheat—would have the same effect. He knew for a positive fact that boiled flour would not do it.

On the consideration of the election of members of Council, 1886, Mr KIDD said that the profession did not learn from the veterinary journals what the instructions were given to counsel *re* Clause IX., and whether his attention was particularly drawn to that part of the original charter which says:—"And we do further declare that the President, Vice-Presidents, and Members of Council shall be elected from and amongst the members of the said body politic and corporate." He said it is a significant fact that the Veterinary Surgeons Act does not interfere with the provisions of the original charter.

It was unanimously agreed, on the motion of Mr. WILSON, seconded by Mr. IRVING, to join the Southern, Central, West of England, Eastern, and

Lincolnshire Associations in supporting the candidature of Mr. Simpson, of Windsor, and Mr. Barford, of Southampton, for seats on the Council of the College at the election in May next.

The PRESIDENT then delivered an able inaugural address. If he vacated that chair, when the time came, leaving the members as firmly united as his predecessors had done, he should be content ; and to that end he confidently asked for their support. To show the extraordinary progress of that Association, he would remind them that it was formed only three years ago, at a meeting of six gentlemen in that room ; and now they had forty-nine members and five honorary associates. It had realised its objects—which were the elevation of the profession, the promotion of a good and friendly understanding amongst the members, the supervision and protection of their professional interests, and the discussion of scientific subjects relating to the profession. Having advocated the more thorough discussion of local interesting cases, and referred to the proposal to establish a monthly record of the proceedings of Veterinary Medical Associations, he said the profession was becoming more and more appreciated by the public. It was opposed to all reason and fairness, he went on to say, that Local Authorities should be able to give an ordinary police-constable power, unassisted by professional advice, to say a cow was affected by Foot-and-Mouth Disease, and that on his unsupported certificate a farm might be declared an infected place, markets might be closed, and a large area subjected to all the inconveniences of restricted cattle movement. (Hear, hear.) Yet such a state of affairs existed under the order of the Privy Council. The Veterinary Surgeons Act might appear to press somewhat unfairly upon the present members of the profession, but on the whole he thought they now possessed as good an Act for their protection as it was possible to obtain. That the next generation would be grateful for it was certain, as the list of “existing practitioners” would become shorter each year. Clause IX. of the Supplemental Charter of 1876 was still engaging the anxious consideration of the committee appointed to inquire into its operation, but they would not expect him to make any statement until the report had been presented to the Council. For the first time in the history of the profession they possessed a College of their own. The funds of the College had been drawn upon largely, and yet more money was required to make the building in every way worthy of the profession ; and he urged them to attend the annual meeting there in May, and inspect it for themselves, and asked those who had not yet subscribed to help the good work. As to the elections to the Council, all he could properly say was that it was their duty to send to the Council those who had the interests of the profession seriously at heart, and who had given proof of their earnestness. He much regretted that while there were 2,700 members on the register of the College last year, about 260 votes only were sufficient to place a candidate upon the Council. Referring to the liabilities of practitioners, he said it was a mistake to suppose that high standing in the profession was any bar to an unscrupulous action being brought for alleged malpractices or alleged neglect. In consequence of many vexatious and unjustifiable actions having been threatened, and sometimes instituted, a society, he was glad to say, had been formed to assist any member in resisting unjust claims. He commended that society, as well as the National Veterinary Benevolent Institution, with which it was incorporated, to their favourable notice and consideration. (Applause.)

The meeting closed with votes of thanks.

Afterwards the members and visitors dined together at the hotel, Mr. Flanagan serving a very elegant repast. Mr. A. Wheatley (of Reading) very kindly placed wine upon the table. The President occupied the chair ; and the toast list included the healths of “The Queen and other members of the

Royal Family," "The Navy, Army, and Reserve Forces," "Success to the Royal Counties Veterinary Medical Association," "Kindred Associations," "The Veterinary Profession," "The President," and "The Officers."

H. KIDD, *Hon. Sec.*

NORTH OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

THE annual meeting and dinner of this Association was held at the County Hotel, Newcastle-on-Tyne, on Friday, February 26th, 1886; the President, J. B. Nesbit, Esq., in the chair.

Present: Professor Robertson, London; Professor McCall, Glasgow; Messrs. Dudgeon, Sunderland; Mulvey, Bishop Auckland; Awde, Stockton-on-Tees; Peele, Durham; Stevenson, Whitburn; Anderson, Hexham; Peele, West Hartlepool; Wheatley, South Shields; Grieve, Blaydon; Chivas, Corbridge; Mitchell, Sunderland; McGregor, Bedlington; Snaith, Sunderland; Stephenson, H. Hunter, A. Hunter, W. Hunter, Elphick, Handcock, and the Secretary, Newcastle-on-Tyne.

The SECRETARY said he had to report that the past year had been a very successful one for the Association; seven new members had joined, and one had resigned owing to leaving this part of the country.

The balance in hands of the Treasurer was £13 17s., as against £13 14s. at the commencement of last year.

The PRESIDENT then read his inaugural address, as follows:—

Gentlemen,—Having been elected your President for the ensuing year, I now thank you most sincerely for the great honour you have conferred on me. I cannot help thinking that your choice ought to have fallen on one older in the profession and more widely known than I am, as I cannot discern in myself any qualification for the high honour. If my zeal and anxiety for the prosperity of the North of England Veterinary Medical Association constitute a fitting qualification for the presidentship, then I claim your confidence, and in bowing to your wish I trust you will overlook my many and great imperfections.

It has been the custom of all Veterinary Medical Societies that the President should deliver an inaugural address on his taking office; but I do hope you will pardon my deviating from the general rule, as I think our time will be better employed in listening to what Professor Robertson has to bring before us. I cannot, however, allow this opportunity to pass without touching on one or two little points of interest to us veterinary surgeons. In the first place, I have to congratulate the members of this Association on its great prosperity since it recommenced its meetings some seven or eight years ago. We have gradually increased in numbers until, I may safely say, we are one of the strongest Veterinary Medical Societies in Great Britain.

Therefore you will have some idea of the great anxiety on my part, lest the success of our meetings, and the Association in general, should suffer at my hands; and I earnestly appeal to you for that support during my term of office which was extended to my most able predecessor.

I have great confidence in asking every member to try to attend the meetings and bring forward subjects for discussion, knowing the very great benefits derived individually, as well as collectively, by so doing. I candidly confess that I never attended a meeting at which I did not learn something worth knowing, and went home a wiser and better man.

In a social point of view, I hold it is of the utmost importance that we should meet together as often as we can. In the rapid pace at which all branches of industry are moving, it would be a miracle if one brother practitioner did not rub against another, causing friction and clogging the wheel

of social friendship. Our meetings help to remove these chafings—in fact, it is one of the strongest reasons why associations such as ours should be upheld by every honourable effort: it helps to remove those petty jealousies which are apt to get the better of our poor human nature.

Gentlemen, we boast of our noble profession; and I hold that it is so. What can be more noble than to relieve the sufferings of the dumb creation? Let us be careful lest at our hands our profession is disgraced, and our position as professional men and citizens lowered in the eyes of the public.

Public opinion is a severe test, and it is best maintained by an honourable walk in life; and if we will only keep in mind the golden rule, to do to others as we would wish that they should do to us, we will be doing much to our social elevation. Individual effort, not Acts of Parliament, will lift us out of the groove hitherto travelled by the members of the profession; and although we have been, by a large section of the community, looked down upon and sneered at, we can boast of having wiped out the dark spot by our own individual professional conduct and gentlemanly bearing. Loyalty to ourselves and loyalty to our profession will do much to help us along the path of life.

We are become a numerous profession—alas! I am afraid, over-numerous; the competition has become so great in some parts, that the under-selling or cutting-down tactics are adopted; and I am sure you will all agree with me that it is to be deplored that a professional brother should bow to all sorts of dodges for doing another out of a client.

But, gentlemen, I must leave the social question—or rather the professional immorality. No matter how much it may be deplored, it must be grappled with and, if possible, rooted out.

What about political matter? I may truly say that no other profession has made greater advances than the veterinary profession in the last ten or fifteen years. We are now under one University, as it were—a united profession; and we have an Act of Parliament to protect the veterinary surgeon, and prevent any but a duly-qualified man from assuming the title of veterinary surgeon. Although, in some districts, qualified men are suffering from the competition of these existing practitioners, the day will come when much good will accrue to the members from the recent Act of Parliament. We have had great changes in the college curriculum, the examination for diploma, also the educational test; all these I hold to be steps in the right direction, you cannot educate a man about to enter the profession too highly. I, for one, would like to see the matriculation examination of a higher standard, and Latin, French, and German should be made compulsory; but to prevent a young man from entering on his college studies because he has not served a pupilage is simply monstrous. I hold that the Board of Examiners have no right to inquire of a candidate for diploma where he got his practical knowledge; all that they are entitled to know, and ought to see that the candidate has got, is, practical knowledge.

Much has been said about the want of opportunity to acquire practical knowledge at college. I am one of those who do not hold that opinion; at least, as far as my own experience goes, I can assure you that the facilities for acquiring practical knowledge were, in my time, of the most complete description, and if the student did not take the trouble to gain that knowledge the fault was his own.

How many eminent practitioners we know, men of the highest standing in the profession, that never served an apprenticeship with a qualified veterinary surgeon—men that have worked on the farm, having an innate discerning tact in the handling and nursing of animals, also men that have worked in the forge, by their abilities and perseverance have come out as shining lights in the profession? Is it just that the ladder by which such men have

reached the summit should be kicked from under the feet of the hard-working, industrious young men of the present and future generations? Do not encourage or assist such selfish ideas.

"Preserve us from our friends!" is an old proverb, and it is applicable to us at the present time. I allude to a pamphlet by Professor Brown, under the patronage of the Royal Agricultural Society, containing all instructions whereby farmers and owners of stock are to treat the various diseases that may invade their byres and stables—not only doctor themselves, but actually to supply the necessary medicines; further, in each county a veterinary surgeon is deputed to compound and sell these nostrums.

Gentlemen, what do you think of this? Can you believe that it could have entered the mind of any professional man, and especially one who holds such a high position as Professor Brown—and more particularly when the profession have had such a struggle to get united, also an Act of Parliament to put down charlatanry and quackery—could have condescended to such an humbling and injurious act? I hold it is injurious, because it has a tendency to take the bread out of our mouths; it lowers our position, and reduces us to the degree of a chemist's assistant.

I hold that, to be a successful and scientific practitioner, you must first diagnose properly; then, according to the symptoms presenting themselves, prescribe. He that has one nostrum for all cases that come under his care is only a quack, and it is a pity that such should have spent both time and money on a college curriculum. I counsel you to treat such conduct with that contempt which it deserves.

The year that has passed has been an eventful one, especially anent the discussion of Clause 9 of the Supplementary Charter of 1876. You all know the *pros* and *cons* set forth by different parties. No doubt the majority of the profession are in favour of having the obnoxious clause rescinded. I hold that it should be rescinded; it is a monopoly on the part of the Fellows, and most unfair to the members of the profession.

Can any reasonably thinking individual fully realise the very humble position the great majority are placed in by the minority? Can you picture in your imagination anything so absurd as that one-twentieth of a society of men should dictate to the remaining nineteenth, and deprive them of all their just rights—the honour to which many a member looked forward to? One might well say, "Can it be?" and yet it is so.

As you are aware, the Council of the Royal College of Veterinary Surgeons have had this clause under consideration, and to be on safe ground they have obtained counsel's opinion on the matter. What is that? Simply that the clause cannot be altered without a new Charter; there the whole matter rests: to me it seems shelved or pigeonholed, and the whole profession has had added insult to injury.

If there is no other method of obtaining our wish to have the clause rescinded than by applying for a new Charter, by all means get a new one.

I feel confident that nothing short of this will satisfy the majority of the members, and if the Council refuse to comply, the responsibility of future events will be on their shoulders, and I must confess I dread the results. It will be the foundation of an agitation, the result of which will be a divided profession. The men of the North, when they put their hands to the plough, will not look back. On principle, and principle alone, will the battle be fought.

The Contagious Diseases (Animals) Act has proved a great success, and the public ought to feel deeply indebted to the veterinary profession and those who have most nobly supported us. The country is almost clear of those diseases which cause such havoc amongst our herds. I do not know what the British farmers, in these dull and depressed times, would

have done if Pleuro-pneumonia and Foot-and-Mouth Disease had been rampant in their flocks.

I think the time has come when the profession should make overtures to the Privy Council to have our rights properly placed before them and maintained—I mean in reference to the inspection of all markets, slaughter-houses, cow-byres, milk-shops, and meat exposed for sale. I consider this of the utmost importance, not only to the profession, but to every individual. It is a national question, which ought to be taken up, not only by the Privy Council, but by every Town Council and every Local Authority; and I am thoroughly convinced that, if the public would only look at the matter in its true light—the imperative importance of a pure-milk supply, so that the infantile population would be safe from the awful consequences of contaminated milk, also a wholesome supply of meat—they would not rest satisfied until the whole matter was under the supervision of the qualified veterinary surgeon, who, by their special scientific training, are the only persons that should be entrusted with the inspection of our food supply, and to act as guardians of the public health.

Every town should have its Veterinary Inspector, and under him a properly trained staff, and every local authority should adopt the same plan. It is very humbling to be subjected to the police-officer's dictation. How much better are the Continental veterinary surgeons treated by their respective governments than we are by ours! I hope the time will soon come, when the veterinary surgeon will occupy that position which he is not only entitled to as his due, but by his special scientific training, is the only one fit to undertake the responsible duty of inspection of food to be consumed by the public.

One word in conclusion, gentlemen; the British National Veterinary Medical Association will hold its meeting this year in Edinburgh, and I trust that those members not already joined will see their way clear to do so at once. Every little help will be appreciated, and as this association promised to give all the assistance it could, I think every one should join; and I hope the North of England will be largely represented at the meeting. Remember, by helping others we help ourselves.

Gentlemen, I thank you for the patience you have had in listening to these random remarks, and apologise for keeping you so long.

Mr. W. J. MULVEY said, it had been considered by many of his professional friends that there was room for, and a want of, a new veterinary journal, a journal that would more thoroughly represent the views and opinions of the veterinary medical associations, and, in addition, contain articles on comparative pathology and scientific research, and if possible be illustrated. It was at one time proposed to introduce it as a private speculation, and he had no doubt in his own mind that it might be in a short time a very profitable one; but then, again, it was thought it would be better to endeavour to get the veterinary medical associations to take a direct interest in the subject, and for it to be, as it were, their own journal. What he now asked was that the meeting would give the subject their favourable consideration, and if after due deliberation they considered the idea a worthy one, they would support the following resolution which he now moved:—"That the members of this Association, believing that a new periodical is needed for the veterinary profession, are willing to support it by becoming subscribers, and in order to establish it are willing to guarantee, out of the funds of the association, the sum of £10."

The SECRETARY said that at their last meeting it was proposed that he should write to the Northern Associations on the subject. He had done so, and so far had only received two replies, one from the Scottish Metropolitan Association, and the other from the West of Scotland Association; the former

Association had, after some discussion, agreed to let the subject remain in abeyance in the meantime, the latter considered the present periodicals quite sufficient.

Mr. G. ELPHICK said he attended the meeting of the Scottish Metropolitan Association, at Edinburgh, last week, and the feeling there seemed to be that there was no necessity for another journal; a great many of the members expressed the opinion that the secretaries did not report the meetings sufficiently. Two or three of the secretaries replied that it was impossible for them to take notes of the discussions at the meetings, and that therefore it was impossible for them to give a full report of the proceedings. After considerable discussion it was decided that the secretary should be instructed to engage a shorthand writer to report the annual and quarterly meetings, and also to find out the cost of engaging a reporter to report the proceedings regularly, and it was thought if this was done, and a full report was published in the veterinary journals, that this would be quite sufficient. If the journals did not think fit to publish the full reports, then it would be quite soon enough to take steps to start a new one. Having himself acted as secretary of this association, he knew the difficulty of taking notes of the discussions, and he suggested that the secretary be authorised to engage a reporter to attend their meetings.

Mr. H. HUNTER said he was of opinion that it was at any rate premature, to think of starting a new veterinary journal for this kingdom. They were, he thought, fairly well represented by the present journals, and the time had not come when they could have another. He did not think the profession large enough to support another paper; Mr. Elphick's suggestion would answer the purpose in the meantime.

Mr. DUDGEON said he agreed with what Mr. Hunter said. For the present, at any rate, the journals fairly represented all that was done at the association meetings. He thought it would be hardly wise for the association to pledge their funds; which were not very great in the way proposed by Mr. Mulvey. The consideration of the matter might safely lie over for the present. The suggestion that a reporter be engaged was a good one, and the secretary should correct what the reporter gave him before sending it to the papers.

Mr. G. ELPHICK proposed that the secretary be authorised to engage a reporter for their next quarterly meeting, and also to ascertain what would be the cost of having all the meetings of the Association reported. Undoubtedly all written papers read before this Association and the report sent by the secretary had been published. They would agree with him when he said that the discussions upon a paper were often of greater value, and sometimes of far more value than the paper itself. On looking at the veterinary journals, as a rule, they would find that "Mr. So-and-so and Mr. So-and-so entered into an animated discussion," and that nothing was said of what the discussion was about. If his motion was adopted the discussions could be properly reported and published in the journals.

Mr. W. AWDE seconded Mr. Elphick's motion.

Professor MCCALL said that the question of a new journal was discussed at the West of Scotland Association meeting, and he there proposed that they should not countenance the starting of a new periodical. Instead of finding fault with the license which had been given to them in their discussions in the pages of the veterinary journals, they ought to thank the editors very much for having opened their pages to them so freely. To start a new journal would require a very large subscription from individual members of the profession; and even supposing a large sum were subscribed, it would be difficult indeed to obtain the services of an editor who would do more justice to their profession and professional discussions than was now done by their present editors.

Professor SIMONDS was at all times willing to do all he could for the benefit of the profession, and no abler editor could be found than their friend Dr. Fleming. To start a new journal to oppose the two present ones would be an ungracious act. He was pleased with the remarks which had fallen from Mr. Elphick. It was true that in the journals it was often said, and only said, that "Mr. So-and-So" took part in a lively discussion. But who was to blame for such meagre reports? It was not the editors of the journals, but the secretaries of the various societies. If the secretaries sent a full report to the editors, they would undoubtedly publish fuller reports. The proper course to take was what Mr. Elphick proposed, and he would suggest that the report supplied by the reporter should be revised by the president and secretary, because, undoubtedly, all of them sometimes said a great deal which was scarcely worth reading.

The motion proposed by Mr. Mulvey was not seconded, and Mr. Elphick's motion was agreed to.

The PRESIDENT said the next subject to be discussed was the Fellowship clause.

Mr. G. ELPHICK moved that a Committee should be appointed to take into their hands the question of the "Fellowship clause." He had taken the liberty last week of sending out circulars and post-cards to ascertain the feeling of the profession in regard to the Fellowship clause in the Charter, and, so far as replies had been received, the members of the profession were strongly in favour of the clause being rescinded. There were many replies still to come in, and therefore he could not say what the definite feeling of the profession was. If a Committee was formed to consider the matter, they could meet at any time and prepare a report, which could be presented at the next meeting of the Association, or to a special meeting if thought necessary.

Mr. D. DUDGEON said that, when he got the notice of the meeting, he was surprised to see it stated that there was to be a discussion on the Fellowship clause; for he thought that they had already expressed their views. They had considered the question two or three times, and on the last occasion they voted very emphatically on the matter, and sent the resolution to the Council of the College. He did not understand why they should rediscuss the question. They had already made it pretty clear that, so far as they knew, a very large proportion of the members of the profession were against the clause being allowed to remain in the Supplementary Charter, and that this Association was decidedly of opinion that it should be rescinded. Since the last meeting of this Association, the Council of the Royal College of Veterinary Surgeons had taken counsel's opinion on the question, and the counsel's opinion was that the clause could not be repealed without a new Charter. He did not know whether that opinion was correct or not.

Mr. H. HUNTER said he agreed with Mr. Dudgeon. The clause had been discussed and rediscussed, and the feeling of the members expressed more than once upon it. The feeling was that the clause was an obnoxious one to the great body of the profession. The only thing which a Committee could do would be to devise means to legally obtain the rescinding of the clause. They might get an opinion from another counsel that the clause could be rescinded without getting a new charter. A new charter would be a heavy expense, but, if a new charter had to be obtained, it would not, if not opposed, be a costly matter, and the money would be forthcoming in order to have the clause rescinded.

(To be continued.)

SCOTTISH METROPOLITAN VETERINARY MEDICAL SOCIETY.

THE annual meeting of the Scottish Metropolitan Veterinary Medical Society was held in the London Hotel, Edinburgh, on Wednesday, February 17th. Professor Williams, the President, occupied the chair, and among those present were—Principal Walley, Professors Lewis, McFadyean, Baird, and McQueen (Glasgow Veterinary College); Messrs. G. Elphick, Newcastle; W. Anderson, Glasgow; C. Cunningham, Slateford; H. Thompson, Aspatia; A. Baird, R. Rutherford, McArthur, Edinburgh; Burnett, Maybole; Campbell, Kirkcudbright; Lyons, Wooler; Pow, Jedburgh; Aitken, Dalkeith; Cameron, Berwick; Cassells, Lanark; Roberts, Kendal; Fairbairn, Cupar; Gladstone, A.V.D., Hutton, Kelso; Boyd, Melrose; Manuel, Hawick; Constable, Inchtute; Young, East Calder; Barclay, Dunfermline; Dalling, Bathgate. Among the visitors were Mr. Cowan, Melrose; and Messrs. Bowhill, Hall, Atkinson, Armstrong, and J. Hall, students.

Professor LEWIS read the minutes of the previous meeting, which were approved of.

The PRESIDENT thanked the meeting for electing him President for the second time. He trusted the Society would work very heartily and co-operate with the National Association, which is to meet here in July, when matters of great importance will be brought forward for consideration. With the staff of fellow office-bearers to carry out the business of the Society during the year, and with their hearty co-operation, he had no doubt they would bring the year to a successful termination.

Professor Lewis then vacated the post of Secretary and Treasurer, in favour of Professor W. O. WILLIAMS, who thanked the meeting for the honour they had conferred upon him, and said he would endeavour to come up to the high standard of efficiency which his predecessors had attained.

The CHAIRMAN: We have now to discuss the question concerning the supporting of a candidate for the Council. You are aware that Scotland is only represented really after all by one member, that is, Professor Walley, I being the nominee of an English Society. I don't think many candidates have been nominated. Some societies have refrained from taking part in the election altogether, and I think it is a very good time to carry a Scotch representative, and so far as I am individually concerned, I shall be very glad to hear of a gentleman being nominated.

Mr. ANDERSON, Glasgow, President of the West of Scotland Association: On behalf of the West of Scotland Association, I have to inform you that we have already had the name of Mr. Campbell, of Kirkcudbright, before us. Of course, we have not taken any serious steps in the matter until we know what resolution this meeting will come to, but I have much pleasure in suggesting Mr. Campbell, as a fit representative for Scotland.

Professor WALLEY: In reference to this matter we had thought amongst ourselves of nominating Mr. Borthwick, but I don't think he would care about it, because once before when he was elected as an examiner, he said he did not care about leaving home. I think as the West of Scotland Association have already made a move in the matter, and intend to nominate Mr. Campbell, that we can do nothing better than support him. (Applause.)

Mr. ELPHICK: I believe it is the intention of the North of England Veterinary Association to nominate a candidate, and you may rest assured that whoever you nominate will have our hearty support.

Professor WALLEY: Do you mean separately from us?

Mr. ELPHICK: Decidedly not.

Mr. CAMPBELL left the matter in the hands of the Society.

Mr. THOMPSON, President of the Border Counties Veterinary Medical

Association : I don't think the Border Counties Association will nominate anybody.

THE PRESIDENT : I think we might have two candidates for the North of England and ourselves.

Professor WALLEY : I propose that Mr. Campbell be nominated as our representative, and that we ask the Northern Associations to assist us. This was agreed to unanimously.

Professor LEWIS : I had a letter from the Secretary of the North of England Society, asking our co-operation to return their candidate, and promising they would assist us in returning ours. The four societies should amalgamate to return the candidates, and I move that our Society should amalgamate with this view.

Mr. ANDERSON seconded, and the motion was agreed to.

Professor WALLEY moved that an Executive Committee, consisting of the President, the Secretary, and one of the Vice-Presidents, be appointed for the purpose of co-operating with the Executive Committees of the other societies, and that they be empowered to take any steps they may think fit for the object they have in view.

Mr. CAMERON : There has always been a difficulty in regard to co-operation. On various occasions I have tried to reciprocate the feeling, but when the whole thing was finished it seemed evident to me that the feeling was not reciprocal on their part, and in future I shall take the liberty of plumping—I don't like the idea of plumping, but no better will do to accomplish the end in view, and I think I will do so on this occasion, and advise others to do the same.

THE PRESIDENT : Don't allow the voting papers to remain too long on hand.

Professor W. O. WILLIAMS : The North of England Association at their last meeting mooted the subject of starting a journal for the North of England and Scotland, as they consider their reports of meetings have not been adequately taken notice of in the veterinary journals. It frequently happens that discussions are altogether omitted. They want to know if this Society would co-operate with other societies in bringing out a veterinary journal for the north country.

Mr. RUTHERFORD : I have heard about this two or three times before. In the first place, this Society, from its rules, can do nothing of the kind ; the constitution of the Society is explicitly plain. It is for the promotion of good fellowship, etc., but not for forming a publishing company or entering into any literary venture as this would be. It was said that the present journals do not satisfy the profession as represented by the societies. I do not think that is proved. While I was Secretary of this Society, there never was the slightest difficulty in getting anything printed except on one or two occasions, when the *Veterinarian* was not publishing our meetings as full as they might have done. That they amended on being well threatened. From a business point of view nothing could be more injudicious. This Society would become legally responsible for the debts that might be incurred in the bringing out of any venture of the kind. I am very positive about that, and I do not think it is a thing for this or any society to venture upon at all.

Mr. ELPICK : At our last quarterly meeting the subject was introduced. I believe the proposal originated in London between two or three members of the Council, who thought it would be to the benefit of the profession if a quarterly journal were published, and the different veterinary associations supported it. I believe that is as far as we are concerned, and it is to come up for discussion at next meeting. Nothing definite has been done, as our Society was anxious to have the feeling of the different associations on the subject. It is to be a national thing, and I believe some members in London were ready to support it at once on simply a guarantee fund.

Professor WALLEY : This matter was mentioned more than twelve months ago in connection with the proceedings of the national associations not being sufficiently reported. It was stated the VETERINARY JOURNAL and the *Veterinarian* would be glad if some such thing were carried out, as it would relieve them very much, they having quite enough to do without publishing the proceedings of the associations. However, there should be no mistake about this, that it is not always the fault of the journals that the proceedings of the associations are not fully reported. If they are not sent up they cannot publish them. Many things of importance have been mentioned in the associations that have never been reported, and I think it is the duty of the Secretary to take all that is worth ; I think they should faithfully report the discussions that take place, but I see no absolute objection to the proposal. Perhaps £5 or £10 from each association would meet all responsibility in connection with a quarterly journal of this kind. I do not think there is anything in the rules that would preclude such a thing.

The PRESIDENT : I think the matter before us is whether we are going to give our moral support to this movement or not. I am very much surprised my friend Mr. Rutherford should follow a line of special pleading in favour of the existing journals. We are not satisfied with them, and the profession throughout the land is crying out they are not worth the money, and that when anything happens it is not reported. The time has come when a new journal should be published, and the question is whether we are to give our moral support to this movement or not.

Mr. ROBERTS (Kendal) thought the difficulty might be met if the journals put out a bi-monthly publication.

Mr. RUTHERFORD : I did not object to another journal, but I objected to this Society, as a society, giving help to what is nothing more than a literary venture. This Society in its individual capacity can assist it, but I don't think the Society can lend itself to any guarantee fund.

Professor MCFADYEAN : I partly agree with Mr. Rutherford, but on the other hand there is great necessity for improvement in the veterinary periodicals. I don't think it is a venture to be taken up except by individuals, and I venture to foretell that, should a veterinary journal be started as a co-operative one, it will end in ignominious failure, and will not pay except by subsidies from the societies. If a man with energy and sufficient ability would start a veterinary journal, and take care to adequately report papers and discussions of veterinary associations, it would put the other two journals out altogether, and that would meet all that was required.

Professor W. O. WILLIAMS : This society consists of sixty or seventy members, and some twenty members attend the meetings. Those who are absent do not hear much about the proceedings. If the Society would give £10 to a journal to print the whole proceedings, they (the absentees) would be able to read them. I asked a printer about a publication, and find that sixty-four pages of printed matter, if five hundred copies were sold every fortnight, could be produced for 1s. 6d. each, and there would be a profit.

Mr. CUNNINGHAM : When I was Secretary, everything I sent was published, and unless proper reports are sent they cannot be published.

Professor MCFADYEAN : When I was Secretary of this Society I never found any tendency to compress the reports.

Mr. CUNNINGHAM : I think it is a great fault with the secretaries. I move the matter be allowed to lie in abeyance for a little.

Professor LEWIS : All the reports which I have sent have been fully printed except matter that was of no consequence. Some members seem to think secretaries are fully accomplished in shorthand, and can take down every remark and attend to the other business at the same time—take all the trash and good sense that is spoken, and unless both the good and the bad are

sent to the journal, they are to be snubbed. Of course it is a snub. I think in future the Society should pay for a reporter to take down the proceedings of the meetings. The Secretary is placed in a position that he is to judge whether the matter is worth sending to the journal or not, and in my case what I did not think worth I did not send.

Mr. ELPHICK : If the associations were to grant a certain sum towards paying a reporter to have these meetings reported it would be of advantage to the profession, and would meet the object in view.

Professor MCFADYEAN : I think the Secretary should be empowered to ascertain what the expense would be to take shorthand notes and extend them, and in any case empowered to engage a reporter for next meeting, and also submit the matter to the next meeting.

Professor WALLEY : I second that proposal, and hope Mr. Lewis does not think we are throwing chaff upon him in regard to that matter.

Mr. CUNNINGHAM : I did not intend to reflect on any one. I simply take the reports of the journals and what I see here to-day.

Professor McFadyean's proposal was then unanimously adopted.

Professor LEWIS : It will be necessary to make some sort of reply to the letter of the North of England Association.

Mr. RUTHERFORD : Well, I move that, while this Society sympathises with the present journals, and would hope for success to any other new one, it cannot lend itself to the establishing of this journal as part of a venture.

No one seconded this amendment, and Professor MCFADYEAN having seconded Mr. Cunningham's motion, that the matter lie in abeyance in the meantime, it was carried unanimously.

Professor WALLEY nominated for election at next meeting Mr. Peter Manuel, of Hawick.

This concluding the business, the PRESIDENT rose to deliver his inaugural address, and said he had thought they would permit him to deviate from the ordinary course of inaugural addresses, and read to them some accounts of eminent veterinarians recently deceased. These accounts would show what great and earnest men we had in the profession, also how continental Governments assisted and rewarded their veterinarians. He then quoted the following eulogy on the death of M. Bouley.

The most eminent representative of veterinary medicine, the man who is incontestably at the head of the profession, who was, and whom we all called Master, Henri Marie Bouley, is dead—President of the Academy of Sciences; ex-President of the Academy of Medicine; Member of the National Agricultural Society; Professor of Comparative Anatomy in the Museum of Natural History; Inspector-General of Veterinary Schools, etc., etc.; Commander of the Legion of Honour. He had climbed step by step the ladder of social success, exhausted all honours, been invested with all dignities. Of all these titles the one which he anxiously retained to his dying day, next to that of "Chief," which he liked to hear from the mouths of his old pupils, were those of General Secretary to the Central Association of Veterinary Medicine, which loses in him the last of its original members, and director of the *Journal of Veterinary Medicine* which he edited uninterruptedly for nearly fifty years. The truth is that Bouley was above everything a veterinarian. He never wished to be anything else, and never was in the eyes of the outside public—he was always the veterinarian, marching on to sound new conquest, and raising himself gradually to the highest summit of public esteem. "In fifty years," said M. Pasteur recently, "he has advanced you a century; his years of work count double." Nothing higher can be said of him than that he (Bouley), who had been numbered so many years among the masters of science, submitted himself as a humble but ardent student to the teaching of his great fellow-labourer, Pasteur. The veterinary profession will never for-

get what it owes to this lofty nature, this distinguished intellect, this ever-youthful heart, generous to prodigality; this man, who subdued by his words; this enchanter, who never wearied in propagating his gospel—the glorious gospel of scientific discovery. He was the very soul of the *Receuil* journal; it was only when his powerless hand could no longer hold the pen that he resigned to others the heavy task of conducting these “chronicles,” into which he had for fifteen years thrown the best part of himself. He had hoped that his illness would be merely temporary; but the kindly smile with which he loved to assure us had something so sad and sorrowful in it that it belied his words. Alas! our gloomy anticipations have been too surely verified, and we now stand in the front rank of the afflicted.

Goubaux says: “Bouley was born at Paris on the 17th of May, 1814. His father was a veterinarian. Bouley entered at Alfort on the 16th of October, 1832, took four first prizes in succession, and got his diploma in 1836. Commenced practice with his father against his will. In 1837 the post of principal assistant to the Professor of Clinical Surgery was vacant by the death of Maillet, and on the 16th of October, 1837, Bouley was appointed. Without neglecting professional duties he wrote papers which appeared in the *Encyclopædia of Agriculture* and other works. In 1839, Bouley was made Professor of Clinical Surgery, Shoeing, and Jurisprudence, and held the post till 1866. He was devoted to his work—never went to bed without visiting his numerous patients, and so he often saved them from death or serious complications. By neglecting his own food he became ill more than once, and was saved from death by his strong constitution and great energy. In 1865 a terrible disease was raging in England. Bouley was sent there, and diagnosed Contagious Typhus of horned beasts. In 1866 Bouley was appointed Inspector-General of Veterinary Schools. He has published works on surgery, pathology, toxicology, anatomy, physiology, and on the organisation of teaching in veterinary schools.”

Bouley was tall and handsome; his face showed vast intelligence: his manners were dignified; his address sympathetic; his lectures were clear and easy to understand, although full of proof of great learning; his voice was pleasant, his speech was bright and lively, and his diction pure. He died at the age of 71.

The PRESIDENT then turned to the death of Count Ercolani, whose life had been so full of romance that he ventured to quote portions of his history. (*American Veterinary Journal.*)

Giovanni Battiste Ercolani, Count of the Holy Roman Empire, a knight pre-eminently “sans peur et sans reproche,” was born in the renowned Etruscan city of Felsina, December 23rd, 1817. His father, Count Paul Leone Ercolani, was an eminent jurist of Bologna. His mother, the Countess Rosa Alba Celestina Lisi, was a lady distinguished for her social and intellectual accomplishments.

The origin of the noble house of Ercolani—or Hercules—can be traced to the warlike days of the old Roman Empire. Since then the name has been borne by chevaliers, barons, counts, and princes. The Church also has been represented by this family, whose members have borne high sacerdotal rank. Finally, the name of Ercolani is inscribed upon the charters and in the annals of every province in Italy, and always with renown.

Count Ercolani, of Bagna-Cavallo, the late distinguished scientist, entered the Royal University of Bologna at an early age. Here he soon graduated with uncommon honours. In 1836 he took his degree as Doctor of Medicine, and, subsequently, that of Doctor of Surgery and Veterinary Medicine. In 1837, while still in his twentieth year, he was appointed Assistant Professor of Anatomy and Veterinary Medicine, under the celebrated veterinarian, Antonio Alessandrini.

The first work of a practical nature that he undertook was the reorganisation and enlargement of the Museum of Comparative Anatomy. This he lived to enrich by his systematic co-operation with kindred institutions in all quarters of the globe.

(To be continued.)

Parliamentary Intelligence.

House of Commons, March 11th.

IRISH VETERINARY SURGEONS.

In answer to Mr. COX,

Mr. J. MORLEY said : The salaries of veterinary portal inspectors in England and Ireland necessarily vary in accordance with the size and business of the ports at which they are engaged. I find that the inspectors in both countries are treated on very similar lines, except that in England somewhat longer notice is given for the termination of an engagement, and there is a limited permission to engage in private practice. I think it is worthy of consideration whether the services in both countries might not be assimilated in these respects.

M. PASTEUR'S PREVENTION OF HYDROPHOBIA.

Sir H. ROSCOE asked the President of the Local Government Board whether, in view of the success said to have attended Pasteur's treatment for Hydrophobia by inoculation, he would consider the propriety of appointing a committee, consisting of about six persons eminent in medicine and science, who should be instructed to communicate with M. Vulpian and other members of the Committee of the French Academy of Sciences as to the exact position of the question ; whether, in the event of such an inquiry seeming to them to be satisfactory, he would authorise this committee to obtain the best investigation this country affords as to the reliability of Pasteur's method, and to advise as to its applicability to this country ; whether the Government would provide such committee with funds for the necessary investigations, the committee itself being unpaid ; and whether he would inquire if such investigations might be carried out in the Brown Institution, under the guidance of the committee, and with the co-operation of the chief medical officer and of the officials of the Brown Institution.

Mr. CHAMBERLAIN : My attention has been called to the reported discovery by M. Pasteur of a cure for Hydrophobia. The recognised eminence of M. Pasteur as a scientific investigator, and the great interest and importance which attach to the subject of his recent inquiries, seem to me to justify a careful and impartial examination of the results obtained. At present the information on the matter in the possession of my department is too vague and incomplete to afford materials for a full appreciation of M. Pasteur's process. I will consider how such an inquiry can be most satisfactorily conducted, and will confer with the Chancellor of the Exchequer with reference to the question of the expense. I shall be glad to communicate privately with my hon. friend, and hope to be able to arrange for such an investigation as may enable a just estimate to be formed as to the reliability of M. Pasteur's method and its applicability to this country.

Dr. CAMERON : Will the right hon. gentleman put himself into communication with the Foreign Office, and obtain the papers that may have been received on this important subject ?

Mr. CHAMBERLAIN : I will endeavour to get the assistance of the

Foreign Office, so that we may obtain all the information in their power to give us on this matter.

March 12th.

INDIAN VETERINARY ESTABLISHMENT.

In reply to Colonel DUNCAN,

Sir U. KAY-SHUTTLEWORTH said : A reduction of the veterinary establishments in India has been sanctioned by the Secretary of State in Council, in accordance with the recommendation of the Government of India, who are of opinion that, in view of the introduction of the system of station hospitals and other changes, a smaller establishment will be sufficient. It is believed that this recommendation has not the concurrence of the Principal Veterinary Surgeon. The revenues of India will bear the cost of the supernumerary officers till they are absorbed.

Army Veterinary Department.

Gazette, March 16th.

Veterinary Surgeon G. F. Davis, to be First Class Veterinary Surgeon.

At the Levée held by command of Her Majesty, at St. James's Palace, by the Prince of Wales, on March 15th, the following officers of the Veterinary Department were presented by the Principal Veterinary Surgeon : Inspecting Veterinary Surgeon W. B. Walters ; First Class Veterinary Surgeon J. Kettle ; and Veterinary Surgeon E. E. Bennett. Dr. Fleming attended the general circle at the Levée.

Obituary.

WE have to announce the death of S. T. Goddard, M.R.C.V.S., on half-pay of the Army, at the age of sixty-five, he having graduated in 1844.

Notes and News.

BERLIN VETERINARY SCHOOL.—We learn that it is probable that Professor Damman, of the Hanover Veterinary School, will succeed the late Professor Roloff as Director of the Berlin Veterinary School.

INTERNATIONAL HEALTH EXHIBITION.—The diploma of honour of the International Health Exhibition has been awarded Dr. Fleming, Principal Veterinary Surgeon to the Army, for his services as a Juror and a member of the Executive Committee.

THE FRENCH VETERINARY SCHOOLS.—By a ministerial decree, Professor Chauveau, the very distinguished Director of the Lyons School, has been appointed Inspector of the Veterinary Schools of France, in succession to the late Henri Bouley. Professor Arloing, of the Lyons School, succeeds Chauveau as Director.

NEW SURGICAL ANTISEPTIC.—Rosolene is stated by M. Serrant to be a particularly good and powerful antiseptic for surgical purposes. It is a pale yellow oil body—one of the numerous mixtures obtained in distillation of resin oil—and when purified, has a density of .950, and but little smell or taste. In addition to its other good qualities, it can be very cheaply produced.

A RABID MENAGERIE.—If all the animals who have bitten M. Pasteur's patients could be preserved, they would form a sort of mad menagerie. A native of Geneva who has been bitten by a mad rat, is the latest addition to M. Pasteur's list. The victim of this uncommon accident was employed as an assistant in the laboratory of Professor Pol, a Genevese *savant*, who is engaged apparently in researches similar to those of M. Pasteur; for the rat which inflicted the bite had been inoculated with the virus of rabies by the Professor. The animal managed to escape from his cage; and it was while he was being recaptured that he bit the assistant. The rat died of rabies forty-eight hours afterwards, and the Professor sent his employé at once to Paris for treatment.

TRICHINOSIS.—A severe outbreak of Trichinosis occurred in May last in the district of Merseburg. In the village of Streuz-Nanndorf, which contains 600 inhabitants, 82 persons were attacked, of these 12 died; in the neighbouring villages of Belle-ben and Aisle-ben four others were victims. A single pig was the cause of the outbreak. It was slaughtered on the 2nd of May at Streuz-Nanndorf, and before the flesh was sold it was passed by the local examiner as free from trichinæ, but later investigation showed them in every part of the carcase. The examiner has been severely punished. Other outbreaks in Berge, in Berlin, and the Grandenz and Marieuwerder circles have been reported. In the two last cases 7 and 10 persons were attacked, and 3 and 1 respectively died.

A HATER OF HORSES.—The death is announced of Count Emeric Sommisch, a Hungarian magnate, who was known in society for his extraordinary hatred of horses. This aversion amounted to a real hippophobia, and it obliged the Count many years ago to throw up his commission in the army. The Count died at an advanced age on his estate in Slavonia. He was a distinguished agriculturist, an excellent landlord, and on all subjects but that of horses, asses, and mules, a man of sound judgment. He would not allow any animal of the equine kind to come upon his lands, so that visitors who rode or drove to see him had always to alight at his park gates. He himself for many years used a vehicle drawn by trained deer, but latterly he went about his estate in a carriage with a team of oxen. His horror of horses is said to have been innate, as there was no accident in his life to account for it.

HYDROPHOBIA IN PARIS.—There were (according to Dr. Dujardin-Beaumetz) nineteen deaths from hydrophobia in Paris last year—a number higher than in previous years; and yet the number of stray dogs destroyed was also higher (viz. 5,060). Of these nineteen persons, fifteen were males, and four females. The youngest was a little girl of five-and-a-half years; the oldest, a man of sixty-three. The time of incubation varied from nineteen months (in the case of a young man of twenty-six) to twenty-nine days (a child of eleven). In only one case was the time of the bite unknown. Excluding that, and the exceptional case of nineteen months, an average of about two months is arrived at for the time of incubation. As to duration of the disease, the extreme limits were one day and eight days; average three-and-a-half days. In no case were the lower limbs bitten. In twelve cases out of eighteen, the upper members were bitten, especially the hand (nine times out of twelve), the wrist twice; in the six other cases it was the face (five times) and the skull (once) that were attacked. Lastly, in seventeen cases of the eighteen, the bite was that of a dog; in the remaining case, it was that of a cat. It will be noted that these statistics relate only to *deaths* from hydrophobia.

INOCULATION AS A PRESERVATIVE AGAINST CONSUMPTION.—M. Verneuil has lately published a letter to the editor of the *Gazette hebdomadaire*,

M. Lereboullet, in which he proposes to set on foot an experimental inquiry into the possibility of finding some method of "attenuating" the presumed *virus* of tubercle, so as to make inoculation therewith practically useful against consumption, either as a prophylactic measure, like vaccination against small-pox, or as a means of cure, like Pasteur's inoculations in hydrophobia. Three thousand francs have already been subscribed, and the respectable names of Cornil, Bouchard, Damaschino, and Potain are mentioned among those who approve of the investigation. It must, however, be remembered (1) that with the exception of hydrophobia, an exception still on trial, no human disease but small-pox is known which can be prevented by inoculation; (2) that of epizootic diseases anthrax is only in certain cases guarded against by Pasteur's attenuated virus; (3) that the dependence of consumption on Koch's *Bacillus tuberculosis* is far from established; (4) that its fatality is very far below that of small-pox or hydrophobia, and its treatment far more successful. Consumption is the most important disease of temperate climates, both by its prevalence, its mortality, and its incidence on young adults; so that the sacrifice of a few rabbits or cats for even a remote chance of controlling its ravages is well justified. But the chance is, we fear, remote.

Correspondence.

THE ARMY VETERINARY DEPARTMENT.

SIR,—I must apologise for troubling you again. In consequence of your note to my last letter, I have looked through the Army Veterinary correspondence and news in your back numbers relating to similar subjects, with the following results.

I find in your January number of 1879 "Philolethes" opened a correspondence upon a question of relative rank. It was kept up at intervals with no result, until 1883, when higher relative rank appears to have been granted, after four years.

In 1879, "R. H. A." and others pointed out the great injustice of retaining the old Indian scale of pay for army men, serving under the 1878 Warrant. I find this was remedied in 1885; that is to say, six years after. Again, I see that in June, 1879, "A Periodical Martyr" called attention to the hardship suffered by members of the Army Veterinary Department of travelling in India without travelling allowance. This allowance was not granted until 1884—five years afterwards.

It would, therefore, appear that the average period required for the rectification of Army grievances is five years. Paragraph 14 of the 1878 Warrant will begin to work in 1888, two years hence. Judging from the above, my letters can hardly be called premature. As to "Sack's" letter, I recognise my mistake, relative to the augmentation of the Indian branch of the Veterinary Department. I confess I should not have accepted his statement as gospel, had I not seen something similar elsewhere. Even now I am at a loss to account for the change, inasmuch as it appears in the newspapers that ten thousand more soldiers are to be sent to India, and that we have acquired a piece of territory about as large as France, in Burmah. I cannot, however, accept his second statement, to the effect that Army Veterinary surgeons cannot receive promotion or rewards during their ten years' service, without corroboration by others. There is not a word in the 1878 Warrant, as published in my list of professional members, which will bear him out. Why imagine grievances? If no rewards, etc., have been distributed, is it not more probable that none have been deserved?

So little remains to be said about paragraph 14, that further trespass upon your valuable space would be intrusive. At some future period, I may avail myself of your suggestion and re-open the discussion. It only remains for me to offer many thanks for the courteous manner in which you have allowed me to ventilate the subject.

J. F. OLIVER.

THE FELLOWSHIP DEGREE.

SIR,—A circular is going the round of the profession, with a postcard attached, etc., requesting members and Fellows to inform Mr. George Elphick whether they are in favour of rescinding Clause IX. of a certain charter, or part of it.

Mr. Elphick's circular dates from the 20th February. Our journals are closed on the 15th nominally, but certainly on the 20th of each month; so that until the 1st of April, members desirous of discussing Mr. Elphick's communications will have to wait six weeks before placing their views before the profession. It is much to be regretted that the circular was not issued a week earlier.

Mr. Elphick has taken this step apparently for his private information, otherwise he would have signed the document as President of the North of England Veterinary Medical Association.

By not doing so, he makes it appear that he is not carrying his Association with him. If such be the case, it is to be deplored, as the *raison d'être* of our societies is "*Vis unita fortior*."

I believe the opponents of Clause IX. stand upon the following grounds, which I will answer *seriatim*:—

1st. It is supposed to be unfair they should be prevented from electing whom they please to the Council.

I would submit that in 1876 the members of the profession petitioned the Privy Council to permit them, through the Veterinary Council, to institute a higher test and to grant a higher diploma, *i.e.*, the Fellowship—this diploma to carry with it the exclusive right to sit at the Council board. To form a nucleus, a certain number of senior practitioners were selected. I greatly regret that the professors of all the schools were not added to this nucleus as honorary Fellows, but at any rate without examination.

Perhaps the excessive hostility shown to the clause by some of these gentlemen is not altogether unconnected with this mistake on the part of the Council.

For about nine years the profession has held to its bargain, but lately some gentlemen appear to have altered their minds, and desire to do away with the clause.

Supposing, sir, you bought a house, repaired it, decorated it, and spent your money and time upon it. Nine years afterwards, when the concern was beginning to be of real value, the former owner came round to you and said he had thought the matter over, and had come to the conclusion he would like the agreement cancelled; that you must therefore make room for him, and without compensation. I imagine you would either smile or swear, according to your temperament.

The Fellows, by examination, are in an analogous position. They have spent time in study; have undergone a considerable amount of anxiety—I heard one gentleman say he would not have been plucked for £1,000—and they have spent money for the diploma; all this on condition they alone should be eligible for the Council.

Are these gentlemen to lose all their hard-earned advantages without any

compensation, simply because some members wish to go back from their bargain?

The first argument on our opponents' list must fall to the ground, both from a legal and a common-sense point of view.

2nd. It is unfair that members who have been in practice for many years should have to submit to an examination by gentlemen, perhaps their juniors in age.

The second plea is based upon the idea that knowledge is proportionate to age, which is absurd. The examiners stand in the foremost rank of the profession, which is more important than the mere question of age.

3rd. It is unfair that an educational test should be applied, thereby rendering the Fellowship difficult of attainment to gentlemen of neglected education.

The third objection is hardly worth discussing. It is precisely for the purpose of keeping illiterate and uneducated men out—unless they educate themselves—that the educational test was instituted. Surely when agricultural labourers, trades unions, etc., send educated men from their own sphere in life to Parliament, we, members of a scientific body, ought to be similarly represented on the Council.

4th. There are gentlemen in the profession who would make good councilmen and examiners who do not hold the Fellowship degree.

The fourth objection has, *primâ facie*, something in it. However, I would ask the profession whether a gentleman who has not the ability, industry, time, energy, or education to get the diploma of Fellowship, is likely to devote much of these advantages to the welfare of his fellow-members if called to the Council? Is it likely that a gentleman who will not pay £15 15s. to increase his own status in the profession, will sacrifice much of his time or money in travelling to London to represent the views of his constituents? Is it not more probable that his pent-up energy would find sufficient vent in publishing the fact of his election in the local papers, with the view of enhancing his value in the eyes of his clients?

From this category I exclude those gentlemen who were professors when the nucleus was formed. I do not think they were well treated, and they have my sympathy. I shall regret their absence from the Council. It is to be hoped they may yet see their way to join the Fellows; not because they would gain much honour, professionally, for they stand deservedly at our head; but by doing so they would give their support to a measure which has for its object the elevation of the profession, which none carry nearer their hearts than they. I venture to appeal to them. The examination to gentlemen occupying their position can only be a matter of form; I am sure they would not grudge a far larger sum than fifteen guineas when the welfare of the profession is at stake. There only remains the feeling of irritation, with which I thoroughly sympathise, or of vanity; but in subduing these feelings I guarantee they would receive ample compensation from our thorough appreciation of their motives in sacrificing themselves for the good of the community.

5th. It is also stated by some that the Fellowship is no criterion of its holder's abilities, because the examination is so easy to pass.

The fifth objection is only partly true. The examiners, when dealing with practitioners of old and established reputation, are perhaps more lenient to them in some matters, not of first-class importance to their efficiency as thoroughly sound professional men, than the younger men; but the papers speak for themselves, and if properly answered by the candidate, must show him to be well up in all branches of veterinary practice. I would further point out that the fifth argument can be turned against its originators. For if the examination is so very easy, there is nothing to keep them from

joining the Fellows but their own want of enterprise. Men of business are wanted on the Council, and a gentleman who has not the gumption to seize what he himself declares to be easy of attainment, is hardly suited to seize opportunities which may arise for forwarding our interests.

6th. Mr. Elphick, at Newcastle-on-Tyne, on the 29th May, 1885, stated : —“What the majority of the members object to is that the Fellows only should be eligible as members of Council, and that it would be putting the whole working of the profession into the hands of a small minority, and whatever important questions might arise, the members would practically have no voice in the matter, especially if the Fellows held opposite views.”

Is not the whole working of the profession, of every society, in fact, always placed in the hands of an elected minority? Let me refer him to every town council and to syndicates generally. So long as delegates are selected they are bound to be in the minority, unless one half of the profession represents the other. If members have any doubts that a candidate will not carry out their views at council, they need not elect him, or they may pledge him to do as they wish.

If a sufficient number of members have any reason to complain of the behaviour of the Council, or of any member of it, they can call a general meeting, and demand the resignation of that member, or of the entire Council.

So, “practically” speaking, such members have nobody to blame but themselves if they are not properly represented.

I have not the pleasure of knowing Mr. Elphick personally, but I take it, like all gentlemen in the North, he has an abundance of shrewd common sense. I am, therefore, in hopes that he will give my suggestions a fair consideration, with the result that he will be one of the first to vote for a candidate holding the Fellowship degree.

I had got thus far when the report of the Liverpool Veterinary Medical Association appeared in the March number of THE VETERINARY JOURNAL, with Mr. Faulkner’s speech. I will answer his questions one by one.

1. He says : “From that date (1844) down to 1886, members have had the privilege (if chosen) to act as members of Council or Examiners. The privileges then granted what have they done to forfeit?”

They surrendered them voluntarily ten years ago.

2. He desires to know : “Are any of those gentlemen who acted as examiners and members of Council prior to 1876, and have acted so since, any better examiners, or more attentive and enthusiastic as members of Council since they were Fellows. Echo answers, No.” Quite so, and they have proved their enthusiasm, with the exception of certain professors, by obtaining the Fellowship. I may point out that the examiners are fee’d, so no enthusiasm is required on their part.

As regards the members of Council, the question of enthusiasm may be considered. Out of the thirty members of Council, there are seven who are not Fellows, five are professors, and two are not. It will be an interesting study to see, when the voting papers are issued, if these gentlemen’s attendance at Council is proportionate to their enthusiasm.

Mr. Faulkner continues : “Then why debar those who are still competent and capable of either position, though unfortunate in not being Fellows, but members coming under the coercion Clause IX?”

It is not their misfortune, but their own fault.

He goes on : “Notwithstanding there being abundance of Fellows, the profession at large elect to send *some* members to Council.”

I refer Mr. Faulkner to the list of attendances which will be shortly issued, or he can run through the record of meetings of the Royal College of Veterinary Surgeons and reckon up the absentees.

“SACK”

DEAR SIR,—Living as I do beyond the sphere of operations—if I may not also say beyond the area of influence—of either of the existing Veterinary Associations, I venture to address you from my cool retreat in these northern latitudes, from which I have looked out quietly, though not without considerable interest, on the gradually-increasing volume of criticism which is from day to day being poured out upon the devoted heads of these gentlemen who were unfortunate enough to occupy the position of Councilmen, and who had the audacity to propose, as well as the influence to carry into effect, the Supplemental Charter of 1876; containing as it does that much-abused Clause No. IX., which has recently become such a bone of contention with the members of the body corporate, and which has consequently given rise to the expression of much bitterness of feeling on their part.

Had I not unfortunately been stamped some little time ago with the fatal brand of "Fellow," I would have confidently claimed, and would also in all probability been gladly accorded, an impartial hearing on this subject; but as it so happens that I am a Fellow, I am afraid that this will, to some extent at least, prejudice partisans against what I am to say. However that may be, I can only, from my isolated position in this hyperborean region, claim a fair and impartial hearing, and be content to leave what I have to say to the good sense of the profession as a whole, to be accepted or rejected as may seem on consideration to be most desirable. I shall, therefore, in as few words as possible, endeavour to make an impartial statement in regard to the operation of the much-abused Ninth Clause, and trust that the result of so doing may not be unsatisfactory.

First, then, in regard to the legality of the clause. This, it will be found, is unimpeachable, from the evidence contained in the opinion of counsel as recorded in the Minutes of Meeting of the Royal College of Veterinary Surgeons, held on January 20th, ult., and, secondly, that it is also impossible now to repudiate the offensive clause, from the fact that the charter as a whole was gladly accepted by the profession at the time it was passed. So much, then, for the legality of the clause, which need not, therefore, be further discussed.

The next point which presents itself for consideration is—Are the terms of entry to the Fellowship so onerous, so unnecessarily severe, and so derogatory to the dignity of the aspiring members, that it is impossible for them to consent to these terms? Well, having had a little practical experience on this point, I am glad to be able most emphatically to say, No; and to supplement my reply with the further explanation that I do not think that a more fair examination could be instituted for the purpose, or a less full one be satisfactory evidence of the qualification of the candidate for the honourable position sought.

That being so in regard to the examination itself, as stipulated for by the charter, and as arranged by the Members of Council and Board of Examiners—neither of whom, by the way, are all as yet branded "Fellows,"—and now that the legality of the clause has been placed entirely beyond dispute, I cannot for the life of me see why the "good men and true" who at present pine for possession of the rights and privileges which they feel are about to pass out of their hands, and which most undoubtedly they will be unable to retain if they do not elect to bestir themselves, should not pocket their pride for the time (if such, indeed, be their stumbling-block), go in for the examination, and come out with the new degree: so that they may thus continue to retain and fully enjoy all the rights and privileges of becoming Members of Council, or of the Examining Board, and the loss of which they so much bewail. If they would but accept the situation gracefully, now that it seems well nigh (if not quite) impossible to alter it, I can assure them that the welcome accorded to

them by the Fellows on their accession to the new dignity would not be exceeded by their own jubilation, or that of their more immediate personal friends, over the result.

I cannot, therefore, conceive of any sufficient reason to deter them from adopting this (in my opinion) the more dignified course, and cease from making animadversions on the conduct of those who, in framing and advocating the clause in question, had most undoubtedly the best interests of the whole profession at heart.

While a reference to the terms of the charter itself seems to leave no loophole, so far as I can read, by which a member of the Royal College can be transformed into a Fellow, otherwise than by examination; yet, I find that certain names (seven in all) have been added to the list of Fellows since the lapse of the prescribed period for the election of the primary or original Fellows, and as, amongst these names, is prominent that of the present rejected President of the Royal College of Veterinary Surgeons, I am fain to conclude that the Council must be possessed of some further or other powers not therein embodied, by which members may be admitted to the rights and privileges of Fellowship. If that be so, and if it can be done without infringement of the terms of the charter, would it not be a graceful act on the part of the Council to pass a bye-law, by virtue of which each member who shall be duly elected either to Council or to the Board of Examiners during the next ensuing ten years—say till 1896—shall have a diploma of Fellowship conferred upon him, either entirely *ex gratia*, or, if that be impossible, with only a nominal examination and on payment of a nominal fee, so that he may thus become duly qualified before entering upon his duties and taking his seat at either of the before-mentioned Boards.

If it be competent to frame some such measure as the above, and if it can, as I trust it will be, carried to a practical issue, I venture to think, Mr. Editor, that it would effectually remove all cause of complaint, and lead to reconciliation, uniformity of sentiment, and thorough good feeling between all sections of the body corporate.

These, then, are a few thoughts that have occurred to me, and which I send you with the sole wish and purpose that they may be of some use in helping towards a settlement of the much-vexed Fellowship question, and tend to allay any acridity of feeling which may have arisen during the course of a discussion which may be fairly enough described as animated, but which, on occasions, would be quite as aptly, and perhaps far more truthfully, described as a heated one.

ANDREW SPREULL, F.R.C.V.S.

Dundee, *March 15th.*

THE FELLOWSHIP EXAMINATION.

SIR,—It gave me great pleasure, when reading the Report of the Fellowship Examination Committee, to see the remarks of Dr. Fleming, as to the creditable manner in which some members of the profession had passed the scientific portion of this examination, especially after being present at the annual meeting and dinner of a Veterinary Medical Society, where a leading gentleman in the profession, in responding to the toast of the "Royal College of Veterinary Surgeons," said, "I am a Fellow, but did not undergo an examination—but paid 10 guineas, and was admitted a Fellow. I was an examiner of Fellows for eighteen months, after which I gave it up; not because it was not paying me. Oh dear, no! as I received 4 guineas a sitting, and was allowed £5 travelling expenses. The reason I gave it up was, because it was not a question who ought to pass and who ought not; they were all to be —, or all —; my opinion was they should have been —," etc.—
Yours, truly,

"M.R.C.V.S."

PROFESSIONAL WANDERINGS.

SIR,—I notice with pleasure, in the March number of your valuable journal, a letter from W. Martin, and I think it is about time that a few more letters of the same kind should appear in print, to act as a stimulus to the Royal College of Veterinary Surgeons in dealing with quacks and such like impostors. Mr. Martin quotes, among others, a case which ought to have been taken as a test or example, but through “procrastination and humbug,” as he justly terms it, on the part of the Council, all chance of prosecution was lost. This, of course, was very mortifying to Mr. Martin and other members of the Southern Counties Veterinary Association, who, to their credit be it said, had taken a very warm interest in the matter; and it only serves to prove the utter uselessness of the Veterinary Surgeons Act, or the laxity of the Council, or both. For, beyond sending a few letters of caution to offenders, what have they really done? Indeed it would appear that, instead of doing good, this wonderful Act has done harm; for it has given license to many undeserving persons to practise veterinary surgery and medicine who, before the Act was passed, had no legal right to do so. The old saying, that “you can drive a coach-and-four through any Act of Parliament,” would seem to hold good in this case. It is to be hoped that in future Members of the Council will exert themselves to prosecute such cases as demand it. Again, there appears to be some doubt among members of the profession whether or not an “existing practitioner” is allowed by the Act to put the words *Veterinary Surgeon* after his name. If such be the case, why not take one case as a test? and that would settle the question. There is ample opportunity for doing this, as most licensed practitioners dub themselves *Veterinary Surgeons*, and the trusting public very often fail to see the difference between such and duly-qualified members.

At this critical period, when there is so much being said, both *pro* and *con*, about the “Obnoxious Clause,” I think it is not altogether out of place to allude to another matter, which concerns all members of the profession, even including the few favoured Fellows. I refer to such cases as one which appeared in a newspaper called the *Colchester Gazette*, and which the Secretary of the R.C.V.S. thought fit to lay before the Council. This paper contained a report of a case in which a member had been convicted of theft and drunkenness, and sent to prison. Now, I ask, what is the use of keeping this member’s name a secret from the profession? Why hide it under a bushel? I contend that such a man ought to be exposed, and dealt with *by the Council* in a summary fashion. Such men only disgrace and degrade our profession, which, in its present state, can ill afford to lose a single particle of fame or eminence to which, by hard struggling, it has attained. It is possible—nay, it is even probable—that the Members of Council intend to investigate this case, and deal with it according to its merits. It were well that they do so at once, and not delay as they did in the instance cited by Mr. Martin, in case they should find their power gone in six months. M.R.C.V.S.

BOOKS ON PHYSIOLOGY.

SIR,—Would you kindly answer in the VETERINARY JOURNAL the following questions?

1st. What work (in the English language) is best on the Physiology of the lower animals?

2nd. What works are used as text-books on this subject in British Veterinary Colleges?

3rd. Which are the best works on this subject (Veterinary Physiology) in the French or German languages?

“AMERICANUS.”

[If our correspondent means works on Veterinary Physiology, we regret to inform him we have no such works in English. In the British Veterinary Schools the text-books are on Human Physiology, as Carpenter's and Kirke's. In French there is Colin's "Physiologie Vétérinaire," in two volumes, published in 1856, the new edition of which was published in 1871, under the title of "Traité de Physiologie Comparée des Animaux" (Paris : Baillière.) In German there is the "Lehrbuch der Physiologie für Thierärzte," by Bruckmüller and St. Polansky, of the Vienna Veterinary School (Vienna : Braumüller) ; this, we believe, is the text-book of the German Veterinary Schools. There is also Munk's "Physiologie des Menschen und der Säugethiere," 1881 (Berlin : Hirschwald).—ED. V. J.]

ORATORICAL EFFORTS.

SIR,—Mr. Anderson, jun., in the course of an interesting discourse made on the 27th January, at Glasgow, and published in your March number, is reported to have said as follows, when speaking upon the subject of micro-organisms :—

"For instance, Pasteur, by experiment, discovers a microbe or promulgates a theory ; Dr. Burdon Sanderson tries the same experiment, and fancies he gets the same result ; some illumined member of our profession endorses their opinions because he has translated some other foreign authority's work."

As one of those who contribute translations to your Journal, to assist your readers—without leisure for the work—in keeping themselves informed of the progress of Continental science, I wish respectfully to point out that the translations are published without any comment.

Mr. Anderson is, therefore, not in a position to know whether they are endorsed or not. It is to be surmised that he intended to convey a purely Pickwickian meaning by his remark, more for the purpose of neatly rounding off a strong oratorical effort than to establish a fact.

F. RAYMOND.

SCABIES IN CAMELS.

DEAR SIR,—I write immediately (4th February, 1886) on receipt of the VETERINARY JOURNAL for January, to first thank you for your kindness in placing the subject of Scabies Cameli before the public, and secondly to correct some errors and omissions that have crept into the article in consequence of no proofs having been received for examination.

On page 18, in the fifth line, read "saddles" for "sandals."

On page 19, under article "*Feeding*"—with a view to prevent misapprehension concerning food for scabied camels—I would remark that the experiment referred to is not related to show the suitability of beans, but only the superiority of beans over barley for choice, when only either are obtainable, as was the case at the time of writing. The food I recommend for scabied camels in camp is :—Dhoora (a small Egyptian variety of maize) or even maize itself ; beans (split), in proportion of one to four of dhoora ; chopped straw—a certain amount of bulky food is absolutely necessary for all ruminants, therefore compressed foods are unsuitable for the camel ; bran, given as a mash in the middle of the day.

In the revised paper I sent you—evidently too late for insertion—I stated that *internal* treatment consists of three ounces of sulphur daily given with the bran-mash, and has a most beneficial effect.

On page 20, in the fifteenth line, read "circumscribed" for "uncircumscribed."

On page 23, in the sixth line, instead of "treat by" read "the preventive treatment consists of."

In the 8th line, read "chiefly due to local inflammation of neglected cases" instead of "due to local inflammation."

Lastly, I cannot believe that the *Acarus cameli* or *Sarcoptes dromedarii* (Vallon) is nothing but the *Acarus* or *Sarcoptes equi* under other conditions. Their habitats and habits in the same stage of existence are different. So far, every effort of mine to establish "Scabies Cameli" on the horse has been unavailable; pimples may appear, other symptoms may appear, if the horse has the *Acarus camelorum* forced on him; but they and the symptoms disappear in twelve days if the horse is isolated from the camels, and, of course, left alone. Not so, however, when a scabied camel is isolated and left alone.

Suakim, 4th Feb.

ALFRED J. HASLAM, A.V.D.

SUBSCRIPTIONS TO MRS. BOWLES' FUND.

						£	s.	d.
Mr. G. H. Pyott	...	...	...	...	...	10	0	
Henry Hogben...	...	...	...	...	...	10	0	
T. A. Dollar	...	...	...	...	...	1	1	0
G. A. Lepper and Son...	...	...	...	...	...	1	1	0
Thomas Greaves, 2nd Subscription...	...	...	...	...	...	1	1	0
Previous	...	...	...	...	...	45	19	0
						<u>£50</u>	<u>2</u>	<u>0</u>

Mrs. Bowles died Feb. 28th, 1886; she had received £27 11s. from Aug. 12th. I have forwarded £22 11s. to Miss Archer, of Ely, to be used for the benefit of the son, who is a confirmed invalid.

March 11th, 1886.

THOMAS GREAVES.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from F. Smith, A.V.D., Netley; G. Aitken, A.V.D., Dublin; J. D. Allman, London; J. F. Oliver, London; A. J. Haslam, A.V.D., Suakin; T. Raymond, A.V.D., Woolwich; R. W. Burke, A.V.D., Cawnpore; "M.R.C.V.S."; "Americanus"; J. A. Nunn, A.V.D., Glasgow; R. H. Dyer, Limerick; M. Kettritz, Gnesen; "Pharmacon"; J. B. Gresswell, Louth; E. E. Bennett, A.V.D., Aldershot; T. Greaves, Manchester; "Sack"; F. Raymond, A.V.D., Woolwich; F. L. Gooch, Stamford; W. O. Williams, Edinburgh; "M.R.C.V.S."; C. Gresty, Newcastle-on-Tyne; T. Chambers, Dudley; H. Kidd, Hungerford; J. W. Ingram, Manchester; C. Lyford, Minneapolis, U.S.A.; J. C. James, Thornbury; C. E. Munn, Dakota, U.S.A.; W. A. Conklin, U.S.A.

BOOKS AND PAMPHLETS: *A. Harvey, M.D.*, On the Foetus in Utero; *F. S. Billings*, Fourteen Days with Pasteur; *E. M. Crookshank, M.B.*, An Introduction to Bacteriology; *Henri Bouley*; *F. Jeffrey Bell, M.A.*, Comparative Anatomy and Physiology; Report of Board of the Department of Public Parks; *J. Mc. G. Robertson*, Physiological Physics; *Lewis's Medical Vocabulary*.

JOURNALS, ETC.: *Journal of National Agricultural Society of Victoria*; *American Live Stock Journal*; *Lancet*; *British Medical Journal*; *Live Stock Journal*; *Wochen-schrift für Thierheilkunde*; *Annales de Méd. Vétérinaire*; *Echo Vétérinaire*; *Prac-titioner*; *Revue Vétérinaire*; *Mark Lane Express*; *Recueil de Méd. Vétérinaire*; *Rundschau auf dem Gebeite der Thiermedizin*; *Edinburgh Medical Journal*; *Journal de Médecine Vétérinaire*; *Revista Popular de la Exposicion Rural*; *American Veterinary Review*.

NEWSPAPERS: *York Herald*; *Scotsman*; *Eastern Counties Gazette*; *Standard*.

THE VETERINARY JOURNAL

AND

Annals of Comparative Pathology.

MAY, 1886.

THE DIAGNOSIS OF RABIES.

THERE are very few diseases the diagnosis of which is of more importance, than that which has been occupying so much of the attention of the London public recently. To be so well acquainted with the symptoms of dog madness, as to be able to state with more or less confidence that it is or is not present in a living dog, may on occasions be of the utmost importance with regard to human and animal life. To pronounce that a dog is not rabid when it really is so, must be fraught with the utmost danger to all immediately concerned; as people will be thrown off their guard, and neglect those measures which alone, when carefully enforced, can ensure safety. Some of these measures have reference to the prevention of the development of the terrible malady in those who have the misfortune to be wounded by the rabid animal; and of these the now most notorious and extraordinary is that introduced by M. Pasteur, which consists in a series of inoculations with rabific matter of different degrees of attenuation. So startling have been the results of this method of protection, that a large amount of incredulity has attended their announcement, and though this is gradually subsiding, yet there seem to be many persons who obstinately refuse to be convinced, and are of opinion that the "vast" majority of those persons inoculated under the direction of Pasteur, because of their having been bitten by animals supposed to be rabid, were wounded by creatures which really were not affected with Rabies. That this may have been the case in some instances is not unlikely, in view of the difficulty of obtaining exact information as to the condition of the animals which inflicted the injuries. But in other instances—and they are the most numerous—the testimony as to their rabidity is of the clearest and most decisive kind. Besides

there being conclusive evidence as to the innocuousness of Pasteur's preventive treatment, the majority of people would be inclined to argue that it is best to be on the safe side, and to recommend recourse to it even in cases of doubt as to whether Rabies was present or not. To do otherwise would, we apprehend, not be considered very judicious. Yet there are individuals among us who act in this wrong direction, and, heedless of the responsibility, try to ignore the value of the Pasteurian treatment, or attempt to cast doubts as to the rabid condition of the animals which rendered such treatment necessary.

Such an occurrence was noted recently. A medical man at Oswestry—Dr. Hughes—was bitten in the lip by his own dog, and his suspicions as to the creature's malady having been aroused, he called in a member of the veterinary profession, who, we believe, said it was suffering from Dyspepsia. After a brief time this opinion did not satisfy Dr. Hughes, and his suspicions becoming more confirmed as to the rabid state of the dog, he hurried off to Paris and placed himself in the hands of Pasteur—most wisely and properly, we think.

Doctor Anna Kingsford, who appears to constitute herself an authority on the subject, and a determined opponent of M. Pasteur, has contrived to get hold of the veterinary surgeon's description of the case of the dog, and has written to the public press two letters, in which she has the temerity to assert that the animal was not rabid at all, and that therefore there was no need to adopt any precautions. Such conduct is clearly and wholly indefensible, and especially when we read the symptoms the dog presented. These were written out by Dr. Hughes, in a brief but lucid manner, and sent to us for our opinion; and if we were asked to describe the symptoms in a typical case of Rabies, we do not think we could do better and in as few words than he has done. We share the regret experienced by other members of the profession, that the veterinary surgeon called in to see the dog should have mistaken a case of Rabies, with all its classical features present, for one of Dyspepsia. Fortunately, the wounded owner had his doubts as to the correctness of the diagnosis, and secured his safety by the best means now known.

But the incident points a moral, and it is for this purpose, and with a view to drawing attention to the serious responsibility veterinary surgeons incur in dealing with such a disease, that we allude to it, and publish the symptoms as Dr. Hughes observed them in the dog:—

Sunday.—To-day my dog appeared to be unwell, and did not

take his food as usual. While out walking with him in the afternoon, two gentlemen drew my attention to him, as he was foaming at the mouth. I took him home and wiped his mouth.

Monday.—The dog appeared to be in much the same condition, taking very little food.

Tuesday.—He seemed decidedly unwell. In the afternoon a friend called my attention to the fact that the dog was persistently gnawing a log of wood.

Wednesday.—While out walking in the morning, I was surprised to find my dog snapping at every dog that came near him, as previously he had been of a most amiable disposition. In consequence of this change in his manner he was chained up. He took no food.

Thursday.—To-day he slipped his chain about 12 a.m., but returned home in about an hour. He was allowed to lie on the hearthrug, and appeared to be sleepy when called to. In the evening, while sitting down reading, I happened to move my foot slowly, when the dog rushed at it. I was then told that he had done the same to my brother a short time before. He was chained up for the night, but he disturbed me by clanking his chain and howling; his cry being something between a whine and a howl. So annoying did this become, that I had to shout to him in his kennel. He had been gnawing and tearing up such things as wood, sacking, etc.; but this was far more noticeable on the following day.

Friday.—He slipped his chain twice after he was chained up; on the second occasion I went out to him, and while stooping and patting him, he suddenly snapped at me and bit my lower lip, and immediately slunk into his kennel. Mr. —, M.R.C.V.S., asked to see him, and gave it as his opinion that he was not affected with Rabies. As I was not home when Mr. — called, I went to his house in the evening with a friend. Mr. — laid great stress on the fact that the dog's mouth was dry, and he said that even if it were Rabies he could hardly have inoculated me, as he was not salivating, and hence there was no poison eliminated. He was again howling at night.

Saturday.—He again slipped his chain in the morning, but shortly after came into the house. He was shut up in a room while a new chain and collar were procured; while there he tore up a footstool and scattered the pieces about. The veterinary surgeon came and saw him. As no one would volunteer to put on the new collar, I suggested that I should take him for a walk while a disused stable was being prepared. While putting on my boots, he again rushed at my foot. I took him for a walk, and on the way he met a dog, which he went up to and snapped at. He

was brought home and shut up in the stable. I noticed that he had become extremely emaciated since Wednesday, that his coat had entirely lost its gloss, and that he was tottering on his hind legs.

Sunday.—He was found lying dead and rigid, with the tongue protruding. He lay on the bare stones, all the straw being kicked away in a circle, as if he had died in convulsions.

Post-mortem Examination.—The stomach was full of matting, hair, etc. The liver was slightly congested, and the gall-bladder rather full. The coats of the stomach were quite healthy. I think the throat was slightly congested. The brain and spinal cord were not examined.

POLL-EVIL: A CURIOUS CASE.

BY J. ROALFE COX, F.R.C.V.S., LONDON.

THE following case of extensive, deep-seated disease beneath the poll, without occasioning any noticeable manifestation for some length of time, is interesting and instructive.

A horse, six-year-old, six or seven months since purchase, had been at regular trotting work in a hooded cart, used for parcels delivery, in the business of a large West-end firm.

During this period nothing had occurred to attract attention to anything wrong affecting him until January 15th, 1886. On this day the horse was submitted for advice, on account of a sore on the neck, thought to be the result of a punctured wound through some unknown accident.

The sore was situated on the off side of the neck, eight inches from the occiput, and one and a half inch beneath the line of growth of the mane, and about the size to admit the tip of the little finger.

Examination showed it not to be due to any wound *from without*, but to a freshly-formed outlet to a sinus from *within*.

A flexible metal probe passed readily as far as the occipital bone, where it stopped at a point on a level with the upper surface of the atlas. The passage of the probe was deep, and from a short distance after entering the sinus could not be traced by the pressure of the fingers from without.

The horse showed little or no resistance to examination of the poll, and forced movements of the neck produced but little indication of inconvenience. By holding the ears the head was depressed for careful examination of the poll externally, and not the slightest deviation from perfect symmetry of the parts could be detected, nor any sign of fluctuation to indicate accumulation of pus, either at the surface or deeply seated.

Simple treatment was adopted to tide over a few days and to note the issue ; then a simple injection into the sinus by the opening on the neck was had recourse to, and a very unusual condition of affairs was revealed, inasmuch as the fluid injected at the neck passed away directly and continuously through the nostrils.

The discharge from the neck became afterwards rather free and of an unhealthy character, as indicating disease of bone, and now and then similar discharge was noticed in the manger. Pain and difficulty in the movement of the head and neck increased, and rather suddenly, towards the end of the fourth week, partial paralysis of the limbs, particularly of the two fore-legs, supervened. Under my advice, the horse was then destroyed.

On *post-mortem* examination, the probe, as during life, passed from the off side of the neck to the occiput ; then, on removing the covering structure, to trace further, it was found that it crossed over by the antero-superior part of the atlas, and dipped downwards on the *left side* by a continuous channel to the pharynx, and by this route to the nasal passage. The occiput and the atlas were extensively diseased, being affected by a good deal of irregular bony deposition, and their articular surfaces on the near side were also involved. There was erosion, also, on the upper aspect of the atlas.

On inquiry at the stable, it seems nothing peculiar had been noticed about the horse, other than he had always been *awkward and troublesome to bridle*.

The case is interesting, as showing how occult may be extensive injury in the region of the poll, and also in the unusual channel by the nose for the discharge from this part. I believe the relief had been by the pharynx for some time prior to the formation of the second sinus down the neck. It is not unlike the post-pharyngeal abscess, with disease of the cervical vertebræ, met with in human surgery.

CHOREA (?) IN A HORSE.

BY G. AITKEN, M.R.C.V.S., ARMY VETERINARY DEPARTMENT (16TH LANCERS).

July 24th.—Chorea. "This is a remount nearly trained." On being led out to water yesterday, at evening stables, this mare was noticed to have a peculiar gait. I saw her about 10 p.m., but could detect little wrong with her in the loose-box. This morning I had her led out of the loose-box ; she seems to have lost all proper control over her action, both of the fore and hind legs, and, once set walking, is with difficulty stopped, and always seems

inclined to pitch on to her head. There is severe clonic spasms of the neck and fore-quarters, similar to those seen in dogs suffering from Chorea, as a sequel to Distemper. The animal is not of a nervous disposition, neither has she shown any sexual excitement. Her pulsations are both regular and normal. Keep quiet, and prepare for physic.

July 25th.—Much the same; appetite good. Give Aloes BB. ʒj in solution.

July 26th.—Cathartic operating freely. The clonic spasms have nearly ceased, but the animal still seems to have little control over her action.

July 27th.—Cathartic set. The clonic spasms have quite subsided, and the animal seems to walk better. Keep quiet, and give sloppy diet.

July 31st.—Much the same. Continue to keep quiet, and give Potassii bromide ʒiss daily.

Aug. 8th.—Walked the mare out of the box this morning; she appears to walk decidedly better; is very fresh, and inclined to play.

Aug. 16th.—Seems to be doing fairly well; walks more steadily, and seems to have more control over the action. Give gentle walking exercise.

Aug. 31st.—This animal, after being at exercise for a short time, seems to lose entire control over her action, and staggers about like a drunken man, and is always inclined to pitch on to her head when made to halt.

Sept. 15th.—Continues much the same. Discontinue Potassii bromide. I fear the animal will never be fit for military service.

Sept. 30th.—The mare seems to have less control over her action. She is otherwise, apparently, in the best of health and spirits; but, when walking, if she comes across an uneven piece of ground she toes it, and then staggers forward for a few steps. Allow to run loose in the drill-field for a few hours in the daytime.

Oct. 21st.—No improvement. I have noticed this mare several times, after being let loose in the field, canter away for a short distance, then suddenly turn heels over head, after which she would lie for a few seconds, then jump up and commence to graze. I intend to bring her forward for special casting unless she improves soon.

Nov. 18th.—The mare is gradually becoming worse. She was with difficulty got in from the field yesterday evening. I have brought her forward, before the officer commanding, for special casting. Keep quiet in loose-box.

Dec. 17th.—She has been cast by the Major-General commanding the Division.

Jan. 3rd.—On the day of sale the mare was found to be unable to walk to the place of auction. A Board of officers assembled and recommended her destruction, which, on being approved of by the Major-General of the district, was carried into effect this morning by opening the carotid artery. *Post-mortem* showed the whole of the spinal cord to be congested, but, after a most careful examination of the brain, I failed to detect any tumour or disease.

TORSION OF THE NECK OF THE UTERUS IN THE EWE.

BY W. LEWIS, M.R.C.V.S., BARNET.

I WAS called at 7.30 p.m., 23rd March, 1886, to see a Cheviot ewe, the property of S. B. Boulton, Esq., of Copped Hall. Found the animal occasionally straining, and learned she had been endeavouring to pass her lamb since noon of the preceding day. On examination, the hand passed readily into the vaginal passage up to the os uteri, which was completely closed, and presented quite a hard and tight resistance to the introduction of even the point of the finger. Not being able to account for this complication, except on the supposition that the neck of the uterus was in a state of torsion, I had her turned over from left to right without withdrawing the hand, and using slight pressure with the point of one finger to the os. Fortunately, I had hit upon the correct turn of the torsion, and after rolling the ewe over from left to right no fewer than five times, without withdrawing the hand, and using the same slight amount of force, I readily passed it into the uterus, the os perceptibly dilating with each turn of the animal.

Parturition was easily effected, and the ewe has done well since. She has given plenty of milk and acted as a foster-mother. I venture to submit this case for publication, as being one of unusual interest and rarity.

THE ESSENTIAL DIET OF A HORSE FOR TWENTY-FOUR HOURS, ITS HEAT-FORMING AND MECHANICAL VALUE.

BY FRED SMITH, ARMY VETERINARY SURGEON, LABORATORY OF HYGIENE, ROYAL VICTORIA HOSPITAL, NETLEY.

THE losses of the body, which have to be made good by food, are of two kinds :—

(1) That resulting from animal heat, the movements of the heart, lungs, bowels, etc., known as the internal work ; and

(2) That resulting from muscular and other movements, and recognised as external work.

We have, therefore, two diets to maintain: the first, to allow of a perfectly-balanced condition of the system, by repairing the losses resulting from the internal work, so that the body-weight may remain unchanged; and, secondly, to restore the waste occasioned by increased muscular and respiratory activity, resulting from the external work.

It is very important, from a scientific point of view, that these distinctions are observed, and in order that this should be so, the first diet is called the *essential* or *subsistence* diet, and the second the *variable* diet.

The methods of experiment by which the quantities forming these diets are determined are most laborious. To obtain the subsistence diet, the food given to the animal is subjected to a careful analysis, and the amount of carbon, hydrogen, oxygen, nitrogen, and salts contained in it ascertained. Known weights of this food are then given, and all the excretions, lungs, bowels, and kidneys subjected to analysis; the body-weight is carefully observed, and the animal placed under such circumstances as to prevent, as far as possible, any movements of the body. The difficulties of carrying out this may be readily appreciated; even in experimenting on men, absolute repose cannot be maintained; but in spite of these drawbacks to extreme scientific accuracy, a very correct approximation may be arrived at.

It is evident that if we know the amounts of C, H, O, and N going into the system, and the quantities of the same elements passing out of it, that the difference between these two amounts will represent the quantity which has been absorbed and retained in the system for the purpose of internal work, and (if the body-weight during the experiment remain unchanged) the difference represents the actual requirements of the system.

In order to obtain the second or variable diet, we calculate as work done the dynamic value of all food digested over and above that required for the subsistence diet. This necessitates, also, elaborate chemical analyses, for only by this method can the amount which is digested be ascertained.

If the dynamic value of the food digested accords with the amount of energy expended by the animal (which may be approximately calculated by a mathematical formula), and the body-weight remains unchanged, it is then legitimate to conclude that the amount of food supplied was sufficient to meet the requirements of the system. It is evident, however, that this diet is a most difficult one to fix, as all depends upon the amount of energy expended during work. For this reason I have named it the *variable* diet. We

have yet another method by which this diet may be calculated, and it is by the quantity of carbonic acid given off from the lungs. The amount of this is directly proportional to the work done; by ascertaining the quantity given off, a simple calculation shows the amount of energy expended and, approximately, the amount of food required.

This method of investigation is by far the most simple, from an analytical point of view, but quite the most difficult to carry out, as it involves the animal wearing an apparatus over its muzzle during work, and other inconveniences unnecessary to detail. I am endeavouring to overcome these difficulties by the construction of a simple instrument, as the method of analysis is much too valuable and rapid to be cast aside.

The analytical valuation of the losses of the body, such as I have indicated above, have been carried out more or less accurately on the Continent, and particularly in France. Boussingault's name stands foremost in this, as in most other, matters of chemical and agricultural interest. His experiments are now very old, and not complete. As far as they were carried, there can be no doubt they are thoroughly trustworthy. In late years the Germans have come to the fore in this, as in other, branches of science. For the present we have to draw on both these countries for the following information regarding the losses of the body. I trust, however, shortly to be enabled to carry out completely those investigations which are so full of important and interesting results both to the scientist and practical man.

The following table will show one of Boussingault's experiments on a horse, made to ascertain the smallest amount of food required to keep a horse in health without loss of weight, or, as we will now speak of it, to determine the essential diet of a horse for twenty-four hours :—(*See next page.*)

From the table, it will be seen that this horse required 5·423 lbs. carbon, 9 oz. hydrogen, 4·061 lbs. oxygen, and 1·3414 oz. nitrogen in twenty-four hours.

The nitrogen recovered requires some consideration. It is usual, in man, to regard the nitrogen found in the urine as the exact measure of the requirements of the body. The careful experiments of Parkes showed that all the nitrogen taken into the system was recovered from the bowels and kidneys. The former was, of course, the undigested nitrogen, and may be at once dismissed, but the latter was the measure of nitrogenous waste, and is consequently of the greatest importance in determining the requirements of the system. It will be observed that Boussingault's experiments do not agree with those of Parkes and others in this respect. He did not recover from bowels and kidneys the amount of nitrogen administered, and is, in fact, 354·438 grains short; this is ex-

plained by saying that it passed off in a free state by the lungs and skin. We now know that the amount of nitrogen given off by the lungs and skin is infinitesimal, so there is probably an error in the analysis. Are we, therefore, justified in considering as nitrogen digested, all over and above that recovered from the fæces? On the other hand, may there not have been more nitrogen returned with the fæces than the analysis represents? This is the weak part of Boussingault's experiment, and for this reason it requires careful repetition. It is weak for this reason, that we will find that when we convert the nitrogen into albuminous food, that there is a wide difference between the amounts we assume the system requires when we convert the nitrogen of the urine into albumen, or when we convert the nitrogen of the urine plus the deficit into albumen. To be clear, assuming the nitrogen found in the urine was the actual amount required in albuminous food, then the quantity of albuminoids would be 8·36 oz. for twenty-four hours; but if we add the missing nitrogen to that found in the urine, and consider that to be the measure of nitrogenous food required, then the quantity would be 13·4 oz.; roughly, a difference of 5 oz. of nitrogenous food, which is something very considerable.

We could see no way out of the difficulty were it not that other careful observers have placed on record the amount of albuminous food required by a horse in twenty-four hours, and as these quantities fall below the 8·36 oz., we may provisionally assume this quantity to be correct.

It only remains for us, therefore, to calculate the heat-forming and mechanical value of the food ingested, and then to tabulate the essential diet of a horse for twenty-four hours. Before we proceed to this, we have to consider briefly how the heat-forming and mechanical value of a food is arrived at.

The amount of heat which can be evolved by substances undergoing oxidation was ascertained in a very ingenious manner by Frankland. The food to be examined was dried, then mixed with a powerful oxidising substance, such as chlorate of potash, and the whole placed in a sort of oven, known as a calorimeter, which is surrounded by water. The substance was then combusted, and the amount of heat developed raised the temperature of the surrounding water; 1 gramme (15·432 grains) of the water, raised 1° centigrade (1·8° Fahr.), is call a *heat unit*. By this method of investigation it was found that

15·432 grains of albumen evolved, when oxidised, 4,263 heat units.

"	"	" fat	"	"	"	9,069	"	"
"	"	" starch	"	"	"	3,912	"	"
"	"	" grape sugar	"	"	"	3,277	"	"

In plain language, 1 lb. of albumen oxidised will raise the tempera-

ture of 4,263 lbs. of water $1\cdot8^{\circ}$ Fahr.; or 1 lb. fat will raise the temperature of 9,069 lbs. (nearly four tons) of water $1\cdot8^{\circ}$ Fahr.

In the animal body the carbon of the albumen is never fully oxidised, as so much of it passes off in the urea as carbon monoxide. In the above table the deduction on this account has been made.

If we ascertain the amount of heat evolved, it is a very simple process to convert it into its equivalent of mechanical energy.

Joule, of Manchester, demonstrated that the heat required to raise the temperature of one pound of water 1° Fahr. was equivalent to the power required to raise one pound 772 feet high. The foot pound is, therefore, the unit of work, and 772 foot pounds is the mechanical equivalent of 1° Fahr.

We know the number of heat units each substance is capable of producing, and from this is calculated its potential energy or mechanical value.

1 oz. albumen oxidised in the system yields	150 foot tons of potential energy.
„ fat „ „ „ „	378 „ „ „ „
„ starch „ „ „ „	138 „ „ „ „
„ grape sugar „ „ „ „	124 „ „ „ „
„ carbon converted into CO_2 „	310·625 „ „ „ „

Disregarding the elementary composition of the food supplied, let us now convert it into actual feeding material.

The diet supplied contained	The excrement contained	Amount digested.
Nitrogenous Matter, 1 lb. 14·36 oz.	1 lb. 6 oz.	8·36 oz.
Non-nitrogenous Matter, 15 lbs. 4·42 oz.	5 „ 6·6 „	9 lbs. 7·82 oz.

We have next to convert our 8·36 oz. nitrogenous matter and 9 lbs. 7·82 oz. non-nitrogenous into heat and work; for this purpose we must calculate the amount of carbon, hydrogen, and oxygen they contain, observe the amount of hydrogen and oxygen which go to form water, and convert the remaining carbon and hydrogen into heat and energy.

To facilitate the working of this, we use the metrical system of weights, and convert the answer into English weights.

The diet digested contained :—Carbon ...2384·54 grammes.

„ „ „ Hydrogen 244·76 „

„ „ „ Oxygen ...1781·07 „

4410·37

The 1781·07 grammes oxygen united with 222·63 grammes hydrogen to form water. There was, therefore, left

Carbon ... 2384·54, which is equal to carbon 2384·54

Hydrogen 22·13 „ „ „ 94·39

Carbon 2478·93 grammes = 87·506 oz.

87.506 oz. carbon = 27,181.55 foot tons of energy.
 8.36 „ „ albumen = 1258.18 „ „ „

Total 28,439.73 „ „ „

We may ascertain, in another way, the energy expended by calculating out the amount of carbon compounds contained in the diet after digestion. The diet contained after digestion :—

Starch ... 3181.6,	which is equal to	1399.9	carbon.	Carbon available from
Cellulose 1141.57	„ „	502.29	„	the urea and from ni-
Fat ... 237.83	„ „	286.69	„	trogenous portion of
				diet unaccounted for
<u>4561.00</u> grammes.		<u>2188.88</u> grammes.		= 253.90 grammes.

2188.88 + 253.90 = 2442.78 grammes carbon available for heat and energy.
 2442.78 grammes = 86.23 oz. \times 310.625 (the foot tons of energy per oz. of carbon) = 26,785.19 foot tons.

Therefore the carbon of the food supplies 26,785.19 foot tons energy,
 The 8.36 oz. of albuminoids 1258.18 „ „ „

Total 28,043.37 „ „ „

This is rather less than the first calculation.

We can check these results by calculating from the carbonic acid expired the amount of carbon it contains, and converting this into energy. The two results should agree very closely.

As shown on the table, this horse expired 6.92 cubic feet CO₂ per hour, or 166.08 cubic feet per twenty-four hours.

The amount of carbon this contains is equal to 27,859.7 foot tons of energy.

This result agrees very closely with the amounts calculated from the food, especially the last ; 28,000 foot tons of energy is, in round numbers, probably the amount expended by a horse in twenty-four hours on his internal work alone. How much of this is utilized in the production of animal heat, and how much for the working of the heart, bowels, respiration, etc. ?

The ratio of the internal work to the internal heat is, in man, as 1 : 9.8 ; accepting this provisionally for the horse, the result would be :—

Work of heart, etc. = 2,660 foot tons.
 „ „ heat = 25,199 „ „

Total 27,859 foot tons of potential energy in 24 hours.

The essential diet for a horse for twenty-four hours may thus be stated :—

Albuminoids	...	...	...	...	8.36 oz.
Fats	...	...	...	...	3.19 oz.
Carbo-hydrates	...	...	...	...	11.5 lbs.
Salts	...	...	...	...	4 oz.

Total water-free food 12.472 lbs.

This is absolutely water-free food, and the potential energy it is capable of producing is equal to 27,855 foot tons.

Assuming the weight of the horse to be 1,000 lbs., he would require 87·3 grains for each pound of body weight; or the whole body would receive about $\frac{1}{50}$ part of its weight in food every twenty-four hours, *for subsistence only, without doing any external work.*

The quantities of the essential diet differ somewhat from those originally published by me in the *Quarterly Journal of Veterinary Science in India.*

We have spoken of this essential diet as theoretically absolutely water-free, but in reality it would contain from fifteen to twenty per cent. of water, and to allow for this we must add 1·87 lbs., or 2·49 lbs. on to the 12·472 lbs. constituting the water-free food.

Such is the ration, with its heat-forming and mechanical value, which will support the vital process of a horse for twenty-four hours.

The food required for labour will take some time to work out, but we trust to complete the observations this year. We may, in a future paper, consider the principles which enable us to judge of the amount required.

STRONGYLUS TETRACANTHUS.

BY S. H. SLOCOCK, M.R.C.V.S., HOUNSLOW.

THE occurrence of this strongyle may not be so uncommon in some districts as in this; but thinking that the record of a few particulars may be of interest to some readers of the VETERINARY JOURNAL, I venture to submit the following:—

Some months ago, I was called to see two colts (two years old). They were said to be doing badly and scouring. I found both at grass: one was purging violently, was greatly emaciated, and showed every symptom of exhaustion from parasitic disease; the other was showing the same symptoms in a less degree. On examining the fæces, I found the blood-red strongyle present in great numbers, so was at once aware what I had to deal with. I had the colts removed to warm quarters, and they were there allowed a most liberal diet. I prepared the owner for the death of the weaker colt, which succumbed in a few days, and explained that the fate of the second colt was most uncertain. I relied for treatment on the good diet, a supply of rock-salt, and preparations of iron. Under this treatment the stronger colt gradually improved in condition; but for weeks continued to pass the parasites at every motion. He has now thoroughly recovered.

A few weeks since, I was called to a colt on another farm. He

was one of five, and had been housed at night all the winter and well cared for. He showed the same symptoms as the above colts, but for a fortnight I failed to find the parasites in the fæces. Suspecting the true origin of the purgation, I commenced the tonic treatment. The colt became gradually weaker until, seeing that the case was hopeless, I advised her destruction.

Post-mortem examination revealed the cæcum and the whole of colon in a marked state of congestion, and the parasites in great numbers in the canal. The larval forms could be distinctly seen arranged in a circular form under the mucous membrane of the intestine, also there were numerous punctures of the membrane, showing the points at which the forms had made their exit on reaching maturity. *Strongylus armatus* was present with them in some numbers.

Strongylus tetracanthus is in length from half to one inch, and is of a bright-red colour. It has a circular mouth, armed with numerous upright teeth or denticles, and outside them are a row of six conical papillæ. The neck is armed with two bristle-like spines; body smooth.

This parasite, owing to its armed head and wandering habits, is probably one of the most destructive parasites of the horse.

OBSERVATIONS ON SOUNDNESS.

BY R. H. DYER, M.R.C.V.S., LIMERICK.

(*Continued from p. 166.*)

Not feeling satisfied with the progress the case was making under his own treatment and superintendence, he sent for me to go to his place and employ the actual cautery upon both front legs, provided they were in a proper state for such operation. The legs were examined, and I was of opinion they had no abnormal heat in them, and firing was performed at once, and that, if all went on well, the animal would be fit to work in about three months. In a few weeks the servant called to report progress—that the horse was doing well, that a good job had been made of the case, and that no blemish would be left, which I was pleased to learn. In three months, or more, I learned that the horse was more lame than he had ever been, and that the opinion of another practitioner had been sought, which was to the effect “that the horse had been fired too severely.” The owner took advantage of the opinion he had received from the “*horse-dealing V.S.*,” and declared his intention of holding the operator responsible for the state the parts assumed. An explanatory note was written and forwarded, which led to some angry remarks from the owner, who, however, afforded

me an opportunity of examining the limbs of the horse. I found the joint had been injured in three different places by the heel of the shoe of the opposite foot, and it was plainly visible that the horse had been in the habit of rubbing the skin upwards and downwards for several inches, so as to produce blemishes on each part of the limb, leaving the intermediate parts untouched. The uninjured parts bore the marks of the cautery, and the hair had grown in such a manner that they were scarcely perceptible, without looking closely at the leg. The joint was double its natural size, and externally inflamed—indeed, red—and remained so for six months. I kept the horse at my own stable, at my own expense, in order to see the termination of the case and to secure the limb after death. Finding there was no prospect of performing a cure, I had him destroyed. The bones were boiled, and are still in my possession: the large metacarpal, the sesamoids, os suffraginis, os coronæ, navicular, and the os pedis all discoloured, their hue is *purple*; the lower half of the large metacarpal bone is covered with spiculi, both anteriorly and laterally; the suffraginis is likewise covered by these osseous deposits. The result of the case gave ample proofs of what amount of injury had been inflicted by the animal himself, if the story of the servant could be believed, which may be received as truth, or the owner would have spoken out before. This was a breakdown of a peculiar character, which would, I have no hesitation in asserting, have terminated in a satisfactory manner if the horse had received proper treatment and attention at home. Unfortunately, however, for the horse and the veterinary surgeon, both the owner of the animal and his servant knew too much in one sense, and not enough in another. I would warn all young men to beware of these very clever horse amateurs: if all goes on well and safely, they are very courteous and friendly indeed; but if cases turn out adversely, they are the most dangerous people we have to deal with.

The front leg, when found in a passive state, is, I have said, standing almost perpendicularly, so that a plumb-line placed at the point of the shoulder should touch the point of the toe on the ground: this is allowed by all judges of horses to be the acme of perfection as regards position. These several parts outside the hoof have never been known to become diseased, or to sustain injury by long standing, except in hilly or mountainous districts, or in ill-paved stables; in either case, there is liability to injury of the flexor tendons. It will be inferred from these remarks, together with some at the commencement of this paper, that most—indeed, all—the injuries to which I have given the name of breakdown result from violence, and that, as a general rule, when in motion. I chose the term for

all these lesions in preference to "strain of back tendons," "sprain of the sinews," and others which I need not repeat. If we will just take a glance at the limb of the horse during the various movements he is capable of producing, we shall, doubtless, commence with the walk, or first movement. In this pace there is not much to bring about breakdown; nor in the trot, it being so regularly and evenly performed, are we likely to find it, unless there be a hole into which a horse places his foot; nor does the canter afford many cases of injury of sheath of tendon, or anything bordering on breakdown. When the pace is increased, and by it increase weight—for by increasing pace weight is increased at the same time, although no more weight is carried—we shall find cases of this kind frequently occur, and at the time the distance (if on a racecourse) has been nearly run. I have known but few instances of giving way at the commencement of a race, except under extraordinary circumstances. When all the muscles are in full play, as they are found to be in a strong gallop, and an animal excited, amongst others, it is when these lesions takes place, and especially so when the horse is used up at nearing the goal, and his jockey has let go his head and sat down to flog. This is the time the mischief often happens, for it is at this juncture the horse is all abroad. I am of opinion there are more races lost, and more horses injured, by this sitting-down system than by any other. If the horse, instead of having his head to himself, were to be held together, and a stimulus applied with the heel, or even a shout, in many instances success, instead of failure, would be the result. I have witnessed many races where these reflections have been forced upon me; besides, the animal being held together, the jockey, watching the movements of his horse, would be less likely to take him upon uneven ground or give the chance of a breakdown, as is too often done. It is when the limb is extended too far beyond its power of recovery that this takes place, and, as a general rule, under no other circumstances. To be plainer, I would state that the extensor muscles have been exerted beyond the power of the flexors, so that the latter have not sufficient strength to overcome the former; a *dwelling* upon the soft parts below the knee is effected, and a giving way of these soft parts the consequence. I know of nothing so likely to interfere with the action of the horse, when doing his utmost at top-speed, than that of the rider sitting down, as many men do, letting go the head, and flogging with all their might. It is the watchful, waiting jockey who can be depended upon; if he has studied and understood pace, he will make his effort within the last stride or two, and win a race with much more certainty than the man who practises the objectionable system alluded to. As, however, I am not scribbling about racing, I must conclude.

Editorial.

THE NEW HOME OF THE PROFESSION.

THE new home of the Royal College of Veterinary Surgeons was formally opened on April 6th, by the President, Mr. Roalfe Cox, entertaining the Members of Council and the Examining Board at a luncheon in the museum room. Advantage was taken of the occasion of the usual quarterly meeting of Council to celebrate the event, and thus a larger number attended to inaugurate the opening of the building than might have been the case had there not been the motive of combining business with pleasure. However this may be, the President's guests, in the enjoyment of his excellent hospitality, could not but feel gratified at finding themselves domiciled, for the time being, in an edifice the property of the profession; and the gratification to which the consummation of many years' aspirations, labours, and anxieties gave rise was amply testified to in the toasts and responses that followed the luncheon. For the first time in its history, the veterinary profession in this country has now a home of its own, and one of which it need not be ashamed. It is true that it is not on the scale—it has not the imposing appearance—of that of most other professions, nor is it even so worthy of our profession as the more ambitious among us would have desired. But it is all our own, and we are not indebted to the Government for aid in its erection. That aid was refused on most frivolous grounds by a Government which has shamefully buried millions of pounds in the desert sands of the Soudan, and squandered away hundreds of thousands of pounds on sentimental political fads. Doubtless, a little assistance would have placed us in a better position and given us a better habitation, while we could have husbanded our own resources, so as to maintain it in a fit condition. Our means have been very meagre, and we have had to eke them out with the greatest care in order to carry the enterprise to its present extent. Indeed, but for the Veterinary Surgeons Act, which added largely to the comparatively small amount collected by the profession, the building, as it now stands, would probably not have seen the light during the existence of the present generation.

Though it does not possess all the attributes which many in the profession would have wished, neither in situation, style, or accommodation, yet it must be confessed that it is a vast improvement on the old tenement where so much of the profession's business was carried out during more than forty years, and the site of which it now occupies, with all its historical and other associations. The council and general meeting room is a fine apartment, ample for all requirements, and when completed in its embellishments will be in every sense of the word creditable. The library and museum rooms are not so large as they might have been to meet the continual demands for space; but the other rooms and business offices are ample, and quite capable of affording every convenience.

On the whole, the Council, and especially the House Committee, are to be congratulated on the success with which they have brought their task to a close ; while the profession is to be felicitated on now possessing a local habitation which will do no discredit to the name which it has already made for itself in the United Kingdom. There is no reason to feel other than proud in what has been achieved, in ourselves and by ourselves ; and while the Council can now joyously welcome the profession to the annual meeting within its own walls and halls, we sincerely trust that a long and a bright career may be vouchsafed to the Body Corporate which has thus taken a fresh departure. May the business transacted in the new dwelling be conducted in wisdom, concord, and amity, and may it tend to the public good and the prosperity of the profession.

We would remind societies and individuals that there is much yet to be done in the way of furnishing, fitting, and embellishment of their building, and that now is a good opportunity for their assistance in thoroughly completing what has been almost a labour of Hercules, but certainly for most, if not all engaged in it, a labour of love.

ON THE ETIOLOGY OF FISTULA AND CHRONIC SCHIRRUS OF THE SPERMATIC CORD.*

BY PROFESSOR JOHNE.

AS a result of castration, a chronic inflamed enlargement of the spermatic cord occurs in horses, but more rarely than in bovines, which prevents the scrotal sack from healing entirely, leaving one or more fistulous openings through which a pustulous discharge is poured out.

Sometimes the scrotal coverings are also implicated. In such cases the coverings become firmly attached to the schirrus, and it frequently happens that large fibrous tumours are the result, which either render the animal useless, or, by spreading to the peritoneum, bring about the death of the patient.

The complaint is known to be caused by bad stable air, and want of drainage of the wound, which causes the retention of pus.

The author has made the interesting discovery that some of these chronic inflammatory enlargements may be looked upon as infectious, and are caused by a fungus, and designated the disease *Funiculitis mycotica chronica*.

The author has demonstrated the fungus to be the cause in four out of ten cases which have come to his notice. In one of the four cases it was a *bona fide* radiating fungus, an *Actinomyces bovis*—the *Funiculitis actinomytica*. In two other cases the cause was also shown to be a fungus with almost equal certainty.

By these observations the author considers he has proved : 1. That *Actinomyces bovis* will attack equines. 2. That animals may become infected, not only through the natural openings, but by wounds on the surface of the body.

He further considers it an undoubted fact that the infection can only be communicated to open wounds from the litter which contains the spores of *Actinomycelia* in the straw.

In support of his hypothesis, the author quotes his observations of Actino-

* A Summary from the Veterinary Reports of the kingdom of Saxony for 1884, and Veterinary Progress in 1885. No. 22. Translated by F. Raymond, F.R.C.V.S., A.V.D.

myces in the tonsils of swine ; also the reports by Jansen of the power of infection possessed by certain kinds of straw, particularly barley straw.

From these investigations it appears that certain kinds of straw carry spores of radiating fungi, and that they may possibly be conveyed to the wound in the spermatic cord.

The examination of the cord shows the fungi enclosed in small nodules, but they differ considerably from the ordinary appearance of *Actinomyces*.

The centre of the nodules are found to be much more granular than fibrous, and it is particularly noticed that the plants show very little, and that very indistinctly, of the well-known radiating appearance.

In fact, the characteristic radiating and refractive appearance of *A. bovis* was hardly to be seen at all in most specimens.

The author considers, therefore, that he has to do with a degenerated form of *A. Bovis*, such as has been found before in bovines.

The fourth case differed from the three already described, microscopically, in the following manner :—

The centre of the grape-like bunches of granulations presented small, round, fungoid conglomerations from five to ten centimetres in diameter.

They were surrounded by a sharp shining contour, which separated them from the neighbouring masses of cells, and from each other.

This contour frequently appeared to consist of a homogeneous membrane, which gave the object an unmistakable resemblance to the *Ascoccus Bilrothii*.

Radiation was not apparent ; on the contrary, the contents of the nodules seemed to be made up of closely-pressed masses of zooglœa of spheroidal, dull refractive corpuscles, which by their perfect indifference to the action of 30 per cent. sol. of hydrochloric acid, acetic acid, and ether, established their character as microbes.

The author regards it as certain, from what is known of the swelling producing properties of *A. bovis*, that the disease noticed in the four cases quoted was caused by similar fungi.

The author further draws attention to similar observations made since the publication of his remarks, by Rivolta (*Giorno di Anat. E fiscilogia* 10, 1884).

Rivolta, in a paper entitled “*Del Micelio E delle varietà E specie di Discomiceti patogeni*,” establishes a group of pathogenous *Discomycilia*, which he subdivides into the following species :—

1. The *A. bovis*, Harz. He adds to this species two varieties, the *A. granulosa* and what he describes as the *A. degli ascessi*. Johne remarks that the fungi noticed by him in his first three cases corresponded completely with Rivolta's illustrations of the *A. granulosa*, which Johne called degenerated *Actinomyces*.

Rivolta further distinguishes—

2. *Discomyces pleuriticus canis familiaris*, Rivolta.

3. *Discomyces equi*, Rivolta and Micellone.

Rivolta asserts that, in conjunction with Micellone, he described this fungus in 1879, and that Bianchi mentioned that it differed from the *A. bovis*, Harz.

It forms pear-shaped cells, which are joined at their base, and thus appear somewhat like grapes without stems ; their contents are granular.

They grow (as Johne has demonstrated in *A. bovis*) by budding from the sides of the base or point, and the buds produce daughter-cells, and so on, until the original mother-cells are surrounded by a new growth.

Johne and Rivolta's observations differ in so far that Rivolta has observed but one case in which a fungus he describes as the *Discomyces equi* was undoubtedly the cause ; whereas Johne has published three cases in which the pathological phenomena were brought about by what he terms a degenerated form of the *A. bovis*, Harz, called by Rivolta the *A. granulosa*.

FRENCH NATIONAL VETERINARY CONGRESS.

THE second National Veterinary Congress of France was held in Paris at the end of last year, and the following is a summary of the proceedings :—

FIRST MEETING.—*President*, M. NOCARD.

Rinderpest, or Typhus Bovine.—That, in addition to the existing regulations, the following be added :—1. “ That the numbering and valuation of the cattle in an infected parish and in neighbouring parishes be made immediately on the appearance of an outbreak, to avoid propagation of the disease, by the appraisers.”—Adopted. 2. In the case of animals arriving from countries which can be invaded by Cattle Plague, when one or several ports remain open to importation, to exact that the imported animals be accompanied by a certificate of health, such certificate to indicate from where the cattle were sent, and such other particulars as will easily enable them to be recognised, and more especially the presence of a special mark on some defined part of the body. This certificate must, in addition, bear the signature of the consul at the port of embarkation.—Adopted.

SECOND MEETING.—*President*, M. BOUTET.

Contagious Pleuro-pneumonia.—Agreed, that in all probability *contagion* is the unique cause of this malady. A long discussion took place on the question of inoculation. The following conclusions were arrived at :—(1) That Willem’s process, employed as a preventive on healthy animals, has an almost absolute efficacy ; but as a measure destined to diminish the losses in an infected area, this process has but a limited power. (2) That experiments, as well as practice, prove that a healthy animal, inoculated, cannot transmit the disease to another not so inoculated. (3) That preventive inoculation should be advised in all establishments where, by reason of frequent changing of cattle, Pleuro-pneumonia may attack the animals therein. (4) That inoculation should be performed as soon as possible in infected stables, etc., on all beasts which still appear to be healthy.

In addition, the Congress passed the following resolutions :—“ That sick or suspected animals must be declared to the authorities without delay ; that the compensation accorded by law must be maintained, as the Congress considers this an excellent method for aiding farmers, already so hard hit by depreciation in prices ; that the official visit be made as promptly as possible, and the slaughter of affected animals be carried out at once ; that the inoculation of contaminated subjects be practised on the spot ; that the bills carrying the words ‘ Contagious Pleuro-pneumonia,’ and affixed at the entrances of infected farms and in other conspicuous places, be henceforth discontinued, as being a measure out of proportion to the danger of the probability of ‘ out-of-door ’ infection.”

THIRD MEETING.—*President*, M. ARLOING.

Foot-rot in Sheep.—The following modifications of the existing law were proposed and adopted :—(1) When Foot-rot is reported in a district, that the Prefect make a decree declaring the infection of buildings, yards, and enclosures, and of the neighbouring fields, in such district, which are to be pointed out by the Veterinary Inspector. (2) That this declaration entail the following precautions, viz., the existence of quarantine in the buildings, yards, enclosures, and pasturages declared infected, and the prohibition of the entry

therein of sheep or goats in a healthy condition; the numbering and marking of all animals in the prescribed area. Exception: If it be necessary to drive animals to pasture, the road so used must be determined by the Mayor (or local authorities), acting on the advice of the Veterinary Inspector.

M. POURQUIER announced that he had attenuated the virus of Foot-rot, and was enabled, by inoculation, to produce a benign form of the disease. He proposed to establish compulsory clavelisation, but the proposition was rejected.

Scab in Sheep, etc.—The following modifications of the existing law were adopted:—When Scabies is established amongst ruminants or in the horse species (horse, mule, ass), that the Prefect make a decree by which these animals are placed under the supervision of the Veterinary Inspector of the district, and that such affected animals be subjected to energetic treatment within eight days of the declaration, change of pasturage only to be allowed after the application (or employment) of curative measures and the avoidance of all contact with healthy animals, according to the rules laid down in the decree. The restrictive orders to be abolished by the Prefect, acting under the advice of the Veterinary Surgeon, after the complete disappearance of the malady and the disinfection of the buildings, yards, etc.—Adopted.

In addition, the following paragraph was introduced:—“That it is forbidden to remove animals affected with Scabies except to slaughter-houses, and in this case only with the sanction of the Veterinary Inspector.”

Foot-and-Mouth Disease.—That the prohibition contained in Para. 7, Art. 30 of the Regulations do not extend to butchers; that in Para. 8 of the same the word *disinfection*, as far as concerns boots, be replaced by the word *cleansing*; and lastly, relative to the removal of the prescribed restrictions, that the Veterinary Inspector himself supervise the carrying out of the measures for disinfection previous to such withdrawal.

FOURTH MEETING.—*President*, M. PICHOU.

Rabies.—In discussing this disease, M. FREGIS considers the slaughter of all *suspected* dogs uncalled for; he would insist only upon the isolation for four months of such dogs when no bite could be discerned. By this the slaughter of valuable animals unnecessarily would be avoided.

M. NOCARD strongly opposed this proposition, as he considered isolation for this period would be quite insufficient, as he has frequently observed Rabies manifest itself even after eight months' duration. He would advocate the maintenance of the existing law in all its rigour, until at least M. Pasteur had rendered his preventive process applicable to veterinary science.

M. PASTEUR, who was received with cheers, stated that inoculation would not always prove the existence of the malady with certitude, for one must draw a distinction between inoculating from an animal destroyed when the disease was at its height, and inoculating from an animal allowed to die from its effects. In dogs destroyed suffering from Rabies, the virus is only found in the spinal marrow; it has not had time to invade the entire nervous system, and consequently inoculation from such might remain doubtful. On the contrary, in an animal which has died rabid, the virus is found throughout the whole nervous system. He concurs with M. Nocard in considering the isolation of suspected dogs for four months inadequate. He further stated, with regard to certain symptoms, “That the rabid dog has little dread of water, whereas man has always this dread. That it is an error to think that they *do not* eat whilst under its influence; they do eat sometimes, and the duration of the disease is thereby lengthened. He has seen a dog remain rabid for sixteen days, instead of dying the second, third, or fourth day, as is generally the case. In treating of inoculation, he warns us against employ-

ing the saliva, as thereby results are rendered uncertain ; the virus should always be sought for in the brain."

With reference to the consumption of the meat of rabid cattle, etc., M. NOCARD proposed the following amendment, viz. :—" That the flesh of ruminants bitten by a rabid dog might be eaten within the six days following the accident."

Several members objected, on the score that the public would naturally resent consuming the flesh of rabid cattle, and the amendment was consequently rejected.

FIFTH MEETING.—*President*, M. PEUCH.

Glanders and Farcy.—(The proceedings under this head are misleading without a previous knowledge of the regulations regarding these diseases. Their translation is therefore not undertaken.)

Anthrax.—M. BOUTET considers that the law is often imperfectly carried out, and that frequently the flesh of animals suffering from this disease is sold for consumption, and further, that the burial of carcasses is not thoroughly performed. Considering the vitality of the virus, he would advocate the creation of enclosed burial-grounds.

The Congress urges the necessity of strict adherence to the law, together with the adoption of severe measures for the destruction and isolation of the Anthrax germs by burial and disinfection.

With reference to "Charbon Emphysémateux" (Black Quarter), M. ARLOING, having established the benefits to be derived from inoculation, prays the Congress to urge upon the Minister of Agriculture "the necessity for studying or evolving a method for rendering the inoculation of young animals obligatory in enclosures and pastures where the disease is known to be prevalent."—This proposition was adopted.

SIXTH AND SEVENTH MEETING.—*President*, M. BOUTET.

Sanitary Police—Organisation of Sanitary Service.—The following propositions were adopted by the Congress :—That a consultative committee for all epizootic diseases be formed, consisting of twenty-one members. That the following be *ex officio* members of the committee : the Director of Agriculture, the Inspector-General of the Veterinary Schools, the Inspector-General of the Sanitary Service, the Chief of the Veterinary Service ; the Minister of Agriculture to nominate eight members, whose tenure of office will hold good for three years, but who are eligible for re-election. The nine others to be selected by the Veterinary Societies of France, also for three years ; the President to be selected by the Minister of Agriculture ; the Chief of the Sanitary Service to hold a veterinary diploma, a national sanitary report to be prepared yearly by him, as well as a *résumé* of the reports of the Veterinary Inspectors, which will take the form of a history of such epizootics as may have been prevalent. That abattoirs be built in the principal centres of each county, to be under the supervision of the Veterinary Sanitary Inspectors. That at all the important railway centres which are in proximity to markets or slaughter-houses there be a Veterinary Inspector, who, in addition to holding veterinary supervision over the animals which arrive and depart therefrom, shall also superintend the disinfection of the wagons used for transporting same. That such markets be principally reserved for cattle destined to be slaughtered at the shortest delay ; or that, in the event of their being again sent away, they be marked in such a manner as may indicate the purpose for which they may be required.

EIGHTH MEETING.—*President, M. BOUTET.*

Sanitary Regulations referring to the Frontier.—Little of interest under this heading.

NINTH MEETING.—*President, M. POURQUIER.*

Tuberculosis.—M. NOCARD considers that the time has arrived for adding this malady to the list of contagious diseases, but owing to the difficulty of diagnosis in some cases, the following resolution was passed :—"That the Congress, convinced of the necessity of including Tuberculosis amongst contagious diseases, but recognising the difficulty which exists in accurately determining the existence of the malady, invite all members of the profession to join in searching out a means for its more thorough diagnosis as soon as possible."

With reference to the consumption of the flesh of tuberculous animals, M. ARLOING proposes : "That the sale of meat, even of good appearance, from animals affected with Tuberculosis be prohibited in every case where the lesions are found to exist either in an important viscera or serous cavity, and also where there is a tendency to generalisation of the disease, which may be recognised by the afferent lymphatics and adjacent ganglia being implicated in the process," but "in such cases where the carcase is allowed to be issued for consumption, the tuberculous organs and the neighbouring lymphatic ganglions be destroyed."—These propositions were passed.

On the proposition of M. NOCARD, it was advised that milk coming from a source unknown to the consumer be always subjected to boiling prior to ingestion.

Typhoid Fever.—Passed : "That this malady be added to the list of contagious diseases."

Swine Fever.—Passed : "That this disease be added to the list also." M. ARLOING points out that it would be well to determine whether this malady exists in a chronic form, as M. Cornevin would have us believe. M. PICHENEY does not admit the chronic form; he recognises only a benign and a malignant type.

G. E. BENNETT, F.R.C.V.S., A.V.D.

THE GOVERNMENT COMMISSION ON HYDROPHOBIA.

ON page 301 of the JOURNAL for last month, under the heading of Parliamentary Intelligence, our readers would observe that, in the House of Commons, Sir H. Roscoe drew attention to Pasteur's discovery of a successful prophylactic treatment of Hydrophobia, and asked if the Government would appoint a committee of about six persons, eminent in science and medicine, to thoroughly investigate the subject, experimentally and otherwise, Government providing the funds, but the committee to be unpaid. The President of the Board of Trade consented to the appointment of the committee and to the necessary arrangements, and a selection of gentlemen has been made to carry out the proposed investigation. In this selection the veterinary profession will, we feel certain, be pleased to learn that their claim to representation has not been overlooked, and that the duty of representing it has been allotted by the Government to Dr. Fleming, Principal Veterinary Surgeon of the Army. The other members of the committee are Sir H. Roscoe, F.R.S., M.P.; Sir James Paget, F.R.S.; Sir Joseph Lister, F.R.S.; Professor Burdon Sanderson, F.R.S.; Dr. Quain, F.R.S.; and Dr. Lauder Brunton, F.R.S.

NEW MEMBERS OF THE PROFESSION.

AT the meetings of the Court of Examiners of the Royal College of Veterinary Surgeons held on the 22nd, 23rd, 24th, 25th, and 26th of March, 1886, the following students from the Royal Veterinary College were admitted members of the profession :—

Mr. A. Marriott	...	...	...	Milton, near Northampton.
" J. Smith	...	...	...	Walham Green, London.
" Thomas A. Britton	...	...	...	Lewisham:
" A. H. Jones	...	...	...	Oswestry, Salop.
" R. A. Lord	...	...	...	Manningham, Yorkshire.
" A. E. Shorten...	...	...	...	Ipswich.
" H. B. H. Chambers	...	...	...	St. Kitts, West Indies.
" G. S. Arkcoll	...	...	...	Leek, Staffordshire.
" L. Barrett	...	...	...	Wisbech, Cambridgeshire.
" J. R. Green	...	...	...	Hucknall Torkard, Notts.
" A. P. Burgon	...	...	...	London.
" N. Blancard	...	...	...	Port Louis, Mauritius.
" W. J. Hatton	...	...	...	London.
" R. W. Dixon	...	...	...	Woolwich.
" E. S. Gubbin	...	...	...	Launceston.
" Lewis P. Rees...	...	...	...	Brovilys Court, Breconshire.
" A. Peele	...	...	...	Durham.
" E. A. West	...	...	...	Norwich.
" C. A. Lye	...	...	...	Crewkerne, Somerset.
" P. G. Bond	...	...	...	Kingsbridge, South Devon.
" F. Warren	...	...	...	Hadlow, Kent.
" H. N. Carter	...	...	...	Guildford.
" A. Hassall	...	...	...	Woolwich.
" C. H. Bray	...	...	...	Highworth, near Swindon.
" W. C. B. Revill	...	...	...	Potters Bar, Middlesex.

The following students passed their *Second Examination* on the 29th, 30th, and 31st March, 1886 :—

Mr. E. Larnder.	*Mr. J. A. W. Dollar.
" W. M. Reeman.	" J. E. Allen.
" W. E. Mathews.	" J. Wooding.
" H. F. Sugden.	" E. R. McHugh.
" C. Rose.	" W. W. Goldsmith.
" G. Reddish.	" T. B. Baker.
" R. B. Aulton.	" J. A. Worsley.
* " W. J. Wagstaffe.	* " F. W. Watchorn.
" A. E. Branch.	" — Clifford.
" H. Hall.	* " T. Wharan.
" J. A. Legg.	* " T. A. T. Hutton.
" R. Wilson.	* " T. Aulton.
" G. L. Bickford.	" W. H. Willsher.
* " J. H. Stidson.	

The following students passed their *First Examination* on the 1st April, 1886 :—

Mr. A. E. Gostling.	Mr. W. Cakebread.
" H. Scarlett.	† " C. Rea.

Mr. G. B. Wills.
 „ T. Yarwood.
 „ J. Sherley.

Mr. T. Hibbard.
 „ E. H. Millman.

* Marked thus passed with "Great Credit."

† Marked thus passed with "Very Great Credit."

ARTHUR W. HILL, *Secretary and Registrar.*

Proceedings of Veterinary Medical Societies, &c.

ROYAL COLLEGE OF VETERINARY SURGEONS.

QUARTERLY MEETING OF COUNCIL, HELD APRIL 7TH, 1886.

Mr. J. Roalfe Cox, President, in the chair.

Present:—Professors J. W. Axe and W. Pritchard; Messrs. J. D. Barford, F. Blakeway, J. S. Carter, B. Cartledge, H. J. Cartwright, J. Roalfe Cox, E. C. Dray, W. Duguid; General Sir Frederick Fitzwygram; Dr. G. Fleming; Messrs. T. Greaves, M. Mulvey, H. R. Perrins, A. H. Santy, H. C. Simpson, J. F. Simpson, Peter Taylor, W. Whittle, W. Woods, F. W. Wragg.

The SECRETARY read the notice convening the meeting.

The SECRETARY said that he had received a letter from Professor Walley asking that his motion might be again postponed until the July meeting.

Mr. PETER TAYLOR said he objected to such a course being adopted, and he would move that Professor Walley's motion be abrogated for twelve months.

Mr. H. L. SIMPSON said that Professor Walley had asked him to propose his motion at the present meeting, and he had told Professor Walley that he would ask the Council to allow the matter to stand over to the next quarterly meeting; he would therefore move an amendment to that effect.

Mr. CARTER seconded the amendment.

At the request of the President, Mr. Taylor withdrew his motion, and it was agreed that Professor Walley's motion should be allowed to stand over for three months, but no longer.

The SECRETARY said he had also received a letter from Professor Walley requesting that another notice of motion might be suspended. It was as follows:—"That the Principals of the different schools be empowered to admit as students any gentlemen who present educational certificates equal in value to the examination prescribed by the Royal College of Veterinary Surgeons."

The minutes of the last meeting were taken as read and confirmed.

The SECRETARY said he had received letters from Professors McCall, Williams, Walley, Messrs. Pallin and Simcocks, regretting their inability to attend the meeting.

The SECRETARY announced the following presentations to the Museum—an old horse-shoe (presented by Mr. Naylor, of Wakefield), dug up some years ago on the north-west bank of the River Calder in the digging of a drain in the direction of the ancient ford from the old deer park attached to Pontefract Castle, at that time the residence of the Earls de Warren; a framed case of unique specimens of bones; and a photograph of the diseased near foot of a three-year-old colt, likewise presented by Mr. Naylor; and a specimen taken from the liver of a horse some time ago, presented by Mr. William Fever.

On the motion of Mr. DRAY, seconded by Mr. TAYLOR, the thanks of the Council were accorded to the donors for their presentations.

Correspondence.

The SECRETARY read letters from Mr. Beeston, the architect, and from Mr. George Thatcher, the solicitor. It was, he said, evidently the opinion of the solicitor that the mere taking out of a brick at the back showing where the doorway was originally, was not a "sufficient retention of intention."

Mr. PETER TAYLOR thought that the most common-sense method of retaining their rights would be to make a door that they could walk in and out of, and he begged to move that that course be adopted.

Mr. BLAKEWAY seconded the motion, which was agreed to.

The Secretary to again consult with the lawyer.

The SECRETARY said that Mr. Slattery had applied several times for a certificate, having lost his diploma with his military accoutrements while on service in India. The matter had been already before the Council twice. The desired information had now been received, together with a declaration made before a magistrate and a notary public.

Mr. PETER TAYLOR proposed that the Council should grant Mr. Slattery the certificate he had applied for.

Mr. BARFORD seconded the resolution, which was agreed to.

The SECRETARY said he had received a communication from an American veterinary surgeon enclosing £1 4s., and asking to be registered as a qualified member of the College. He said he was registered by the State in America, but he had not supplied any foreign diploma. He (the Secretary) presumed he should return the money and send the usual reply that the applicant did not come under the Act.

Dr. FLEMING thought that there was not sufficient evidence that the gentleman had graduated, and suggested that a letter should be written to him to that effect.

This was agreed to.

The SECRETARY stated that he had received a letter from Mr. Courtois, a veterinary surgeon from Alfort College, saying that he wanted to study at the veterinary school in London, but he considered it hard that he should be subjected to a year's study before he could obtain his diploma.

It was agreed that the Secretary should write to Mr. Courtois stating that if he wished to become a graduate of the College he must conform to the bye-laws.

The SECRETARY said that Mr. William Teeling had written to him stating that he was not satisfied with simply being a registered practitioner, for he thought that under certain sections of the Act he was entitled to become a member. The subject had been brought before the Council some time ago, and the usual reply had then been sent to him saying that he was a registered practitioner, but could not be made a member unless he passed through the study of the schools. He was not satisfied with that, but requested that the matter might be again brought before the Council.

Professor PRITCHARD suggested that the present application be laid on the table.

The suggestion was seconded by Dr. FLEMING, and agreed to.

The SECRETARY said he had received an application from the Royal Society for the Prevention of Cruelty to animals asking permission to be allowed to prosecute a Mr. Stone for misdemeanour. If the Council would permit that Society to take proceedings it would do so at once. He would read a letter from a member of the College to Mr. Colam. [Letter read.]

Mr. H. L. SIMPSON said the Council had nothing to do with the greater part of the evidence given in the letter; it had simply to deal with the statement made by a certain individual that he was a member of the Royal College of Veterinary Surgeons, Edinburgh. He did not know whether it would be

desirable that the matter should be referred to a committee, or whether the Council should take action at once.

The PRESIDENT remarked that Mr. Colam desired on behalf of the Society for the Prevention of Cruelty to Animals to take proceedings on his own account.

Mr. H. L. SIMPSON said in that case he would move that Mr. Colam be permitted to adopt the course which he proposed to take.

Mr. CARTLEDGE seconded the motion.

Professor AXE thought the question for the Council was not one of cruelty, and that it was no part of the duty of the Society for the Prevention of Cruelty to Animals to undertake a function which belonged to the College. The man had culpably misrepresented himself to be a veterinary surgeon, and he would therefore move an amendment that the Secretary be instructed to take such measures as would ensure his being punished for that offence.

Dr. FLEMING said the College was not a prosecuting body, nor had it the funds to prosecute with. The Act of Parliament specified that the consent of the College was to be given to any person or body of persons who wished to prosecute under similar circumstances, and he thought the College ought to be only too glad to accept the assistance which had been offered by the Society for the Prevention of Cruelty to Animals.

Mr. WRAGG seconded Professor Axe's amendment.

The amendment was then put to the meeting and negatived, and the original motion was agreed to.

Professor PRITCHARD proposed, and Mr. BLAKEWAY seconded, that Mr. Colam be informed that, should he require it, the Council would render him every assistance in the prosecution.

The resolution was carried.

Dr. FLEMING said that as the Council meetings were usually quarterly, the time might lapse within which action could be taken in such cases. He begged to propose that those cases should be submitted to the Registration Committee for their consideration, and that if that Committee thought it necessary it should advise the President to call a special meeting of the Council.

Mr. H. L. SIMPSON seconded the resolution, which was agreed to.

The SECRETARY read a letter from Dr. McBride, late Professor to the Royal Agricultural College, Cirencester, stating that he was a Professor of Medicine and Surgery in the Edinburgh Veterinary College, the Agricultural College, Cirencester, the Imperial College of Agriculture, Japan, and was author of various veterinary works, etc., and on those grounds he asked to be made a Fellow of the College.

Dr. FLEMING said that Dr. McBride's application did not come under the terms of the Charter.

It was agreed that the Secretary be instructed to write to Dr. McBride, asking him to come up for the Fellowship Examination.

The SECRETARY submitted three cases of complaint under the Veterinary Surgeons Act from the profession, and was instructed to issue the usual cautionary letters.

Re-election of Members of Council.

The SECRETARY said the nominations for the Council were as follows :—Mr. James Storrar, proposed by Mr. Faulkner ; Mr. H. L. Simpson, proposed by Dr. Fleming ; Mr. Perrins, proposed by Mr. Over ; Mr. Thos. Campbell, proposed by Professor Walley ; Professor Brown, proposed by Professor Pritchard ; Sir Frederick Fitzwygram, proposed by Mr. Dray ; Mr. Barford, proposed by Mr. Wragg ; and Mr. Blakeway, proposed by Mr. Dray. The retiring members were Sir Frederick Fitzwygram, Mr. Simcocks, Professor Brown, Mr. H. L. Simpson, Mr. Perrins, and Mr. Santy.

The PRESIDENT said it was competent to members of Council to propose *vivâ voce* any member whom they liked, irrespective of any written nomination ; and it was also competent for any member to propose any other member in writing within twenty-one days.

Dr. FLEMING was also of this opinion.

Mr. BLAKEWAY expressed a hope that the voting papers, etc., might be sent out under cover, and not merely in a wrapper.

The PRESIDENT said that it had been so arranged by the Council.

Report from the Court of Examiners.

The SECRETARY read the report, which stated that since the last meeting twenty-five new members of the profession had been admitted, twenty-seven had passed the Class B Examination, and nine had passed the First Examination, or Class A.

Report of the Examiners for the Royal Agricultural Prize.

The SECRETARY read the report, showing that the Silver Medal had been awarded to Mr. Alfred Cawdle, and the Bronze Medal to Mr. C. Winteringham.

Fellowship Examiners' Report.

The SECRETARY read the report, which stated that five candidates had presented themselves for examination :—Messrs. E. E. Bennet, A.V.D. ; J. D. Barford, Southampton ; and H. Leggett, Luton, passed successfully.

Report from the House and Building Committee.

The SECRETARY read the report. It stated that Professor Pritchard had offered, and the Building Committee has accepted, a handsome table for the committee-room. The Central Veterinary Medical Society had offered a stained-glass window for the council-room ; and Mr. H. L. Simpson (Windsor) and Mr. J. F. Simpson (Maidenhead) had jointly offered another. Both had been accepted, and would be placed in position before the date of the annual general meeting of members.

Dr. FLEMING asked whether the designs for the stained-glass windows were to be submitted to the Council ?

The PRESIDENT stated that the donors had submitted the designs to the House and Building Committee.

The SECRETARY called attention to the fact that the casements of the windows in the rear of the building had not been made to open. The specification stated that the casements should be made to open, and it was evidently an oversight on the part of the architect. The architect had given a further certificate for £400, and the House and Building Committee had requested him to obtain the lawyer's opinion upon the subject. The lawyer had stated that as the architect had given the certificate the Council had better pay the £400. Of course there would be more than that sum to pay. The House and Building Committee could not obtain a proper debtor and creditor account, and they did not feel justified in sanctioning the payment of £400 in such an irregular way. The architect had already received £75, and applied for a further payment of £60.

Mr. TAYLOR proposed that the matter be left in the hands of the President, the Treasurer, and the House and Building Committee, to make the best arrangements they possibly could.

Mr. WOODS seconded the motion, which was agreed to.

Mr. GREAVES said he had great pleasure in subscribing £50, to be spent in the manner the Committee thought most advisable under the circumstances.

A donation of £10 was given by Professor Axe, to be devoted to the purchase of bottles, jars, and spirits for pathological and other specimens in the museum.

Further donations were also announced—from Mr. J. F. Simpson £20, Mr. Wragg £10, Dr. Fleming £5, and Mr. Mulvey £5.

On the motion of Mr. DRAY, seconded by Mr. TAYLOR, a vote of thanks was passed to the donors for their subscriptions.

Finance Committee.

The SECRETARY read the report.

Mr. DRAY moved that the report of the Finance Committee be accepted, and, if approved, adopted, and that cheques be drawn to meet liabilities.

Mr. WHITTLE seconded the motion, which was agreed to.

Parliamentary Committee.

The SECRETARY read the report.

Mr. PETER TAYLOR moved that the sanction of the Council be given to the Parliamentary Committee to request a member whose case has already been discussed to appear before them and give his own explanation ; and, in the event of it not being satisfactory, to summon him before the next Council meeting and give him notice of the intention of removing his name from the Register.

Professor PRITCHARD seconded the motion, which was passed.

Committee appointed to investigate Clause IX.

Mr. H. L. SIMPSON said the object for which the Committee was formed was to inquire into the operation of Clause IX. and to report to the Council. The Committee had fairly considered the matter, and in his opinion had arrived at a wise conclusion—first, that they had no power to rescind, and secondly, that it was not advisable to apply for a new Charter. It was his opinion that the Council, first of all with regard to justice and then with regard to expediency, would have to do something for those men who, on the 23rd of August, would be disenfranchised. Taking all the circumstances into consideration, he would give the following notice of motion :—"That application be made to the Privy Council for a Supplemental Charter enabling all members who graduated prior to 1876 to retain all the rights they now possess with regard to sitting on the Council and on the Board of Examiners."

Mr. PETER TAYLOR thought that if such a motion were passed it would be most unjust. It would not only stultify the action of the Council, but would seriously retrograde the movements of the College. When the proper time came he would certainly propose an amendment.

Dinner Committee.

The SECRETARY read the report. The annual dinner would take place at the First Avenue Hotel.

Honorary Fellowships.

The PRESIDENT said he thought the Council should celebrate the opening of their new College Home by a graceful compliment to certain gentlemen of acknowledged scientific attainments, and in high estimation with the profession, by admitting to the Fellowship Degree those gentlemen who were, or had been, professors in either of the British Veterinary Schools on the 23rd of August, 1876. He proposed, as a compliment to those gentlemen on taking the Degree, that the fees should be remitted, and that the Board of

Examiners would, *pro formâ*, be pleased to testify on their behalf. He saw no difficulty whatever in carrying out that arrangement.

Mr. PETER TAYLOR seconded the motion, which was unanimously agreed to.

Mr. GREAVES said he was delighted beyond measure with the remarks which the President had made. He was of opinion that the various professors who were not at present Fellows would accept in a courteous and becoming manner the offer of the Council and the honour that was intended to be conferred upon them.

The PRESIDENT, in reply to a remark, observed that it could not be said that those gentlemen had entered in an irregular way. The Council were all satisfied with their attainments without asking them to undergo an examination.

The PRESIDENT gave notice that at the next meeting he would propose, "That Bye-law No. 49 be amended in accordance with alterations to be determined as to the subjects for the examination under Bye-law No. 50."

Professor AXE said he considered the compliment a mark of very great distinction, and had sincere pleasure in accepting it.

Professor PRITCHARD also acknowledged the compliment.

Obituary.

The SECRETARY read the Obituary List.

Mr. DRAY proposed that an honorarium be given to the Secretary for his energetic efforts in connection with the removal of valuables to and from the new building. He was placed in a most responsible position, and had had very increased duties to perform. He (Mr. Dray) expressed his sense of the value of the Secretary's services in the interests of the Council and of the profession generally.

Mr. WHITTLE, and other members, supported the motion, which was carried unanimously.

The SECRETARY appropriately acknowledged the compliment, and expressed his most sincere thanks for the appreciation of his services by the Council.

SPECIAL MEETING.

The SECRETARY said he had sketched out the Annual Report, which included the Financial Statement ; he would have to go through it with the President. The Council ordered that it be left in the hands of the President and Treasurer.

The Secretary was instructed to make the necessary arrangements for the appointment of scrutineers.

Mr. J. F. SIMPSON asked whether the voting papers were retained from year to year.

The SECRETARY replied that they were not. They had been entrusted to the care of the scrutineers to dispose of, as they were not further required when the votes had been recorded by those gentlemen.

Mr. J. F. SIMPSON said in that case he would suggest that they should be kept for one year, and at the expiration of that time be destroyed.

Mr. DRAY seconded the motion, which was agreed to.

On the motion of Mr. PETER TAYLOR, seconded by Mr. DRAY, a hearty vote of thanks was passed to the President, and the Council separated.

On this occasion, being the first meeting of the Council in the new building, the President, J. Roalfe Cox, Esq., invited the members of Council and the Court of Examiners to a most enjoyable luncheon in the Museum of the College.

CENTRAL VETERINARY MEDICAL SOCIETY.

The meetings of the above society, held on February 4th and March 4th, were chiefly occupied by a highly interesting address by Professor Tuson on "Disinfection." Sixteen members attended the first meeting; fifteen were present in March; Mr. F. W. Wragg (President) took the chair on each occasion.

In the course of his address, Professor Tuson directed attention to the fact that for efficient disinfection sulphurous acid had long been made use of; but, although so useful and powerful an agent, fumigation was its only manner of employment, and this, he said, was a proceeding fraught with trouble, and not without danger. It had for a great while been his desire to compound a substance which would evolve sulphurous acid when exposed to air, and yet would remain unchanged so long as it was kept in confinement. Chloride of lime was an agent which set free its active principle when exposed to the air, but chlorine, though a deodoriser, had no antiseptic power. The distinction between the terms disinfectant, antiseptic, and deodoriser should be observed; they are too generally carelessly, or indiscriminately used; a disinfectant destroys the organic germs; a deodoriser destroys, or neutralises, offensive or noxious odours; an antiseptic prevents or retards putrefaction.

The preparation introduced by Professor Tuson realised the object he had in view; it consisted of a volatile agent in combination with one which remained fixed; when exposed to the atmosphere it slowly and persistently evolved the active sulphurous acid gas; and a further advantage might be claimed for it, in that it had no smell of its own; it combined the three powers recently alluded to—was a disinfectant, a deodoriser, and an antiseptic. In the powder sulphate of lime and sulphate of alumina were mixed with fifteen per cent. of sulphate of zinc; air or moisture caused a decomposition to be set up between the sulphates of zinc and alumina, which resulted in a steady evolution of sulphurous acid gas; when this met with ammonia in the atmosphere of a stable, it formed sulphite of ammonia; in the moist bedding the same combination occurred, and the sulphite rapidly oxidised, forming a sulphate of ammonia; this remaining fixed in the litter, added appreciably to its manurial value.

When the liberated sulphurous acid met with sulphuretted hydrogen, it decomposed it; the resultants were sulphur and odourless pentathionic acid. The action of the various disinfectants was illustrated throughout the address by attractive and original experiments.

Several practical proofs of the power of the sulphurous acid compound were graphically described. A cattle ship, directly after its arrival at the docks, and while reeking with abominable odours, was sprayed with the liquid, after proper dilution, and in twenty minutes all offensive smell had disappeared.

The liquid disinfectant consists of a strong solution of chloride of zinc impregnated with sulphurous acid, so that both the solid and fluid preparations contain a fixed and a gaseous agent, the model of what a disinfectant should be. It was proved by the experiments which were a few years ago undertaken by Dr. Baxter, at the instance of the Privy Council, that sulphurous acid was more powerful than either carbolic acid or chlorine in destroying the activity of small-pox virus; it was, in short, thoroughly established that sulphurous acid, when properly applied, was a sure disinfectant. No method of employing a gaseous agent has been found by chemists to be so potent as that of making a solution. To show the antiseptic property of the disinfectant liquid, some horseflesh, after a spraying with a dilute solution, one part to fifty, had been preserved for months in the hottest weather, and had then proved wholesome and nourishing food for dogs. Contrasted with other

agents, the disinfectant under consideration is seen to be of the highest value ; carbolic acid, though a good antiseptic and disinfectant, is of no use as a deodoriser ; chloride of lime disinfects and deodorises, but has no antiseptic power ; permanganate of potass is a very useful deodoriser, and is moderately good as a disinfectant, but is useless for antiseptic purposes.

In answer to questions from Mr. ROWE, Professor Tuson said he looked upon the liquid form of the disinfectant as the most effectual. Also he remarked that it would not stain linen or clothing.

Mr. F. WALKER said he could speak most favourably of the preparation ; its deodorising effect in a loose box in which he had first tried it was marvellous. He recommended that it should be mixed with some inert powder to prevent waste, and at the same time to distribute it over a larger surface ; stablemen in general were not to be trusted to use properly so concentrated a powder.

In answer to Mr. SIMPSON'S questions on this point, Professor TUSON said he had heard of ashes having been used by some to mix with the disinfectant powder ; he had in many instances recommended the addition of gypsum ; and, among others, the Great Eastern Railway Company had adopted this plan, mixing one part of the powder with two parts of gypsum.

Mr. WRAGG was of opinion that Professor Tuson's liquid disinfectant would be found of great service in the treatment of many cases in veterinary practice ; he had made use of it in Quittor, Mange, and Fistulous Withers, and was pleased with the result ; he used it with water in the proportion of one part to ten for Quittor and Mange, and one part to twenty for ordinary wounds.

Professor TUSON said he held a letter from Professor Axe, in which he stated his regret that he was prevented from attending the second meeting, as it had been his intention to have detailed the favourable results of his trials of the new disinfectant.

Mr. J. ROALFE COX exhibited to the members present on March 4th, the atlas and occiput of a horse, both bones showing evidence of extensive inflammatory disease. The horse was brought to him on the 15th January with a wound three-quarters of an inch long just below the roots of the mane, and at a distance of seven inches from the crest of the occiput ; inspection proved that it had opened from within, and a probe could be passed through a sinus till it reached the occipital bone ; in a day or two sanious pus issued ; he had ordered warm water injections only, and a strange feature in the case was that some of the water found exit through the nostrils. After the lapse of a month no improvement took place, and the animal could scarcely walk a quarter of a mile without falling, paralysed for the moment. He was destroyed as incurable. It was found that a sinus from the diseased spot communicated with the posterior part of the pharynx. For a month previous to January 15th there was nothing to attract especial attention to the horse beyond slight restiveness when its head was handled. Mr. Cox also laid before the meeting the atlas of a dray horse, which on several occasions had, from a cause unsuspected at the time, been brought back to the stable on account of a temporary attack of paralysis while at work ; the supero-anterior part of the bone was so thin and eroded that any unusual pressure of the bridle caused compression of the spinal cord and sudden loss of power.

Mr. H. L. SIMPSON considered the interesting case detailed by Mr. Cox to have been one of deep-seated Poll Evil. The communication with the pharynx was a peculiarity he had never met with. Paralysis was not, he said, a very uncommon symptom in Poll Evil from the pressure of the confined pus upon the spinal cord.

The PRESIDENT said it appeared to him extraordinary that no symptoms were shown at an earlier stage. Judging from the appearances presented, he

considered that three months would have been required to produce the extent of morbid change.

Mr. HANCOCK questioned whether the deep-seated abscess might not have been a result of suppressed Strangles or other pus-forming condition of system.

Mr. F. WALKER considered that the most curious point was the very low site of exit for the pus, the opening not being immediately below, or upon, the poll, as is usual.

Mr. COX had no doubt that the abscess had a traumatic origin, probably a blow on the head.

APRIL MEETING.

A meeting was also held on the 1st April, at the First Avenue Hotel. Ten members attended, including the President.

The principal business of the evening was to have been the consideration and discussion of an essay by Mr. Steel, V.S., A.V.D., on "Relapsing Fever of Equines," a supplementary paper to the one which has already appeared in the VETERINARY JOURNAL. To facilitate discussion, the essay had been printed by the Society, and issued to the members.

As a great portion of the evening was taken up by discussion on other topics, it was decided to postpone the consideration of Mr. Steel's essay to the next night of meeting, so that Dr. Griffith Evans, who, as the earliest investigator of the disease, took great interest in the subject, might be able to attend.

A letter from the secretary of the Border Counties Veterinary Medical Society was laid before the meeting. It announced the intention of that society to give no vote to any Fellow of the College at the election of Council. It was proposed, and at once agreed to, that the letter should "lie upon the table."

ALFRED BROAD, *Hon. Sec.*

NORTH OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

(Continued from page 295.)

Mr. ELPHICK said the reason why he proposed to take active measures, was because he had been told on pretty good authority that the Council of the Royal College of Veterinary Surgeons would shelve the subject unless active measures against it were taken. He was anxious to ascertain the feeling of the members of the profession respecting the clause, and if a Committee was appointed they could, when the replies to the circulars were received, come to some definite decision on the matter. At the meeting of the Scottish Metropolitan Society in Edinburgh, the feeling was very strongly in favour of the clause being rescinded, and a great many of the gentlemen present were willing to subscribe very liberally towards a fund to have a test-case to try the legality of the Fellowship clause over the old original charter. He had no doubt the same gentlemen would be willing to subscribe and try to get the obnoxious part of Clause IX. rescinded, so that all members of the profession might be eligible to sit as Members of Council.

Mr. DUDGEON seconded Mr. Elphick's motion to have a committee appointed.

The motion was adopted by a large majority.

Mr. ELPHICK proposed that the following gentlemen form the committee :—The President, Secretary, and Messrs. Dudgeon, Peele, Mulvey, Elphick, and H. Hunter.

Mr. D. MCGREGOR seconded the motion, which was agreed to.

The PRESIDENT said the next subject for discussion was the Council election, but he did not see what benefit there was to be derived from their

electing a member for the Council if he was entitled to sit only from May until August. Last year this association joined the Northern Association, and were successful in having their nominee elected. He thought it was proposed at their last meeting that they should this year adopt the same tactics. At their last meeting it was proposed that Mr. Elphick should stand as a candidate.

Mr. H. HUNTER thought they might leave the subject in the hands of the committee just appointed to consider the advisability of running a candidate who was not a Fellow. Even Mr. Mulvey would have been ineligible to sit on the Council if he had not, since his election last year, become a Fellow. This seemed a monstrous and stupid sort of thing. He proposed that the question of nominating a candidate be left in the hands of the committee just elected.

Mr. MULVEY seconded the motion.

The SECRETARY said the Northern Associations were willing to amalgamate with this Association again this year, as at the last election. The West of Scotland Association were going to nominate Mr. Campbell, of Kirkcudbright.

Mr. C. STEPHENSON: Is he a Fellow?

The SECRETARY: Yes.

The resolution proposed by Mr. Hunter was agreed to.

Professor ROBERTSON then read the following paper on

INTESTINAL HELMINTHIASIS IN THE HORSE.

Gentlemen,—In the present paper it is intended merely to give a short account of the chief animal parasites—worms chiefly—which infest the alimentary canal of the horse, with a view to their recognition as disturbing agents, their individual identification when observed, and the means which we possess of dislodging these or of combating their hurtful influences.

For a complete account of this subject, its relations to other disordered states, the individual history and mode of development of these organisms, I must refer you to special treatises on the subject.

In studying the history of parasitism, we find that it has, in comparatively recent years, undergone considerable change.

From regarding these existences as developing spontaneously in certain states of the animal body, or as a needful condition in the maintenance of healthy functions, we are now tolerably certain that they are neither the result of diseased conditions nor needful for the healthy carrying out of animal activities. The light in which they are now regarded is rather that of disease-producing entities, owing their existence in all animals to the introduction into their bodies of living seeds or germs, the situations and tissues in which they are found merely furnishing a suitable soil for their growth and development.

Although the existence of intestinal helminths has been recognised as a fact in hippopathology from the earliest periods, neither the extent of this condition, nor yet the number of individual entozoa, with their tendency to induce obscure and fatal intestinal and other disturbance, has, until a comparatively recent period, been brought home to the minds of veterinarians or owners of horses.

If, from the non-success as yet of hippophagy, the dangers to human health are less numerous and direct than in the case of Helminthiasis affecting our food supply in animals, there is yet, in addition to the chance of indirect propagation, the question of monetary loss from illness and death of the most valuable of our animals.

In the horse, the intestinal worms which ordinarily come under our observation belong to—

1. *Cestodes*, or *tapeworms*, of which we have (a) *Tænia perfoliata*, (b) *Tænia plicata*, (c) *Tænia mamillana*.

2. *Nematodes*, or *round worms*—(a) *Strongylus armatus*, (b) *Strongylus tetracanthus*, (c) *Ascaris megalocephala*, (d) *Oxyuris curvula*, (e) *Spiroptera megastoma*, (f) *Spiroptera microstoma*.

3. *Larval forms* of some insects not otherwise parasitic—(a) *Gastrophilus equi*, vel *Æstrus equi*, and *Gastrophilus hæmorrhoidalis*, the common bot, and the red, or fundement bot.

Besides these forms, there are in other countries rarer varieties, both *amphystoms* and *round worms*, some of which, from collected facts, appear to be sources of much inconvenience or serious disease.

Etiology and Development.—Although much has yet to be learned regarding the genesis of intestinal worms, their modes of entrance into animal bodies, and their course of development, we yet know sufficient to convince us of the non-spontaneous origin of these organisms, as also of the great probability that none originate from ova deposited by the perfect worm in the canal itself. The ova, we are disposed to believe, must be discharged from the bowel, and, after undergoing metamorphosis outside the former host, are again taken into the animal body destined to afford them a habitation where they may perfect their existence. With the round worms, generally an embryo is developed in the ovum after its extrusion from the parent worm, and from the canal of the host, or it may in a few instances be formed while the ovum remains in the bowel. In this state it may remain for an indefinite period, until the favourable conditions, met with on returning to the digestive tract of its future host, favour the growth of the embryo. From certain experiments, however, it is doubtful if the simple reception of the ovum with the contained embryo is all that is needful to ensure the future perfecting of the entozoon, as it appears that in some cases it is needful that the embryonic form shall reside for some time in the body of an intermediary bearer, usually a lower organism than its final host, ere it can reach perfection of form and development in the latter; that, having entered the intermediary bearer, it either undergoes certain changes there, and on leaving it is received by its future bearer, or that both intermediary bearer and entozoon are swallowed in food or water by the higher animal and ultimate recipient; that, having reached the bowel, the future perfecting of its form is carried out there.

Of the development and growth of the tapeworms as a class we are even better informed.

The ova of these are extruded in collections or colonies from the bowel, in the steady discharge of the segments (proglottides). Each segment being broken up, allows the ova a free distribution, or this may be secured at once, they having been dislodged from the mature segments in the canal of the parent animal.

The ova, on dispersion from their collected form in the segments, are, through medium of food and water, conveyed into the digestive tract of other creatures, only thriving at this stage of their being in animals different from those in which the perfect form is found; there they discharge their embryos. When liberated, these latter attach themselves to the lining of the tube, and gradually, by virtue of special powers and selective affinity, penetrate the tissues and form a limited settlement in particular situations. In these latter locations head and neck are developed with a more or less perfect caudal appendix or bladder. This is the condition known as a *cysticercus* or *cystic tænia* found in various organs of different animals. In this position and stage of growth the organism may remain for an indefinite period, or it may perish and undergo degenerative changes. Each tapeworm seems to possess its own particular *cysticercus*, finding its location in a distinct organ of a particular animal. Some of the cystic forms we know, others have not yet been recog-

nised and differentiated ; ordinarily these cystic tænia find their way into the alimentary canal of the particular animal which forms its ultimate bearer through medium of food or water; and when reaching its final resting-place or locality where its final development is carried out, anchorage is obtained by means of the hooklets in the head, while the caudal vesicle disappears, and extension proceeds by growth of living individuals or segments from behind the head.

In the horse the tapeworms hitherto recognised are neither numerous nor striking from their size, in both these respects differing from their congeners in ruminants and in the carnivora. Although neither from the number of their forms nor physical magnitude of apparently great importance, they have in several instances where encountered in horses been accredited with the induction of serious results.

Round worms, which are of almost universal occurrence, particularly in young animals in indifferent condition, and on rather low-lying and damp situations, are generally acknowledged to be productive of widely distributed and varied disorders, many of which baffle treatment and terminate in fatal results.

Description.—This I will only carry so far as to note the chief characters of the more common varieties with a view to the differentiation.

I. TAPEWORMS.—These, in their maturity, and in the more perfect examples which exist in other animals than the horse, are characterised by the possession of elongated and flattened, or tape-like, forms. They are composed of a head, neck, and body, the latter made up of a variable number of segments (proglottides), of a quadrilateral form, united by means of an intervening softer substance. As a whole, the structure of these may be said to be solid, there being no cavity employed as a digestive tube. The segments spring from the head, so that the more perfect and mature are those farthest removed from the head.

Each of these segments or parts may, with greater propriety, be regarded as a distinct and perfect organism, complete in itself, and capable of exercising reproductive functions, possessing both male and female organs. From the manner of the growth of these individual parts, the closer to the head they are found, the less perfectly are they developed or marked with individuality of form.

Their habitat in all animals is chiefly in the small intestines.

1. *Tænia plicata*.—This is the longest of the tapeworms of the horse met with in this country. Its head is large and square-shaped, provided with four sucking-discs, one at each angle ; the neck is rather short, but always springs from a distinct groove in the head ; the body is made up of narrow segments having a serrated margin ; its length is from six inches to three feet. Its common habitat is the small intestine. Neither for this, nor either of the other tapeworms of the horse, does there appear clinical symptoms which can be relied upon as diagnostic, while the proglottides, being small, are easily overlooked when voided with the fæces, unless carefully watched for.

2. *Tænia perfoliata*.—This is probably the commonest of the equine tænia. The head, much smaller than the plicata, is, like it, of a square shape and rounded at the corners, and has two fleshy lobes at its base on each side. The neck is suppressed, the segments of the body imbricated, not serrated, and gradually narrowing to the tail. In length, it is seen from one to four inches ; habitat, large and small intestines.

3. *Tænia mammillana*.—Much smaller than either of the preceding ; it has a pointed head, but no distinct neck or basilar appendages. The segments are distinct and wedge-shaped, giving to the parasite a more distinctly tapeworm appearance than the *Tænia perfoliata*. Its length is from one-third to one-half inch, and is found in the colon usually, but, unless carefully looked for, is rarely detected.

There are other forms said to exist by some observers; but, as far as I am able to form an opinion on this point, I see no very strong reason why all may not be regarded as varieties of two distinct forms, the *Tænia perfoliata* and *Tænia plicata*.

Although, as already stated, the clinical symptoms in the horse of the existence of tapeworms can scarcely be said to be diagnostic, this statement is only meant to apply to the fact that the presence of a few of these worms in the equine host may not give rise to unequivocal indications of the existence. The same may, with equal truth, be affirmed respecting a limited number of other helminths in the bowels. That they, when numerous, may give rise, not only to general disturbance, but also to fatal results, experience abundantly testifies. It seems highly probable that much disturbance of a serious nature connected with the presence in the intestinal canal of tapeworms may exist in horses, the true cause of which may be overlooked unless careful after-death examinations have been carried out.

A very interesting and faithfully-recorded epizoöty amongst Welsh ponies, observed by Mr. Lloyd, of Dowlais, Glamorganshire, is fully noticed and commented upon by Dr. Cobbold in his larger work on the "Entozoa"; while a more detailed record of the cases, by Mr. Lloyd himself, in the *Veterinarian* for 1874, will repay perusal. In these cases the most prominent feature was not marasmus, which we so frequently observe in pronounced intestinal Helminthiasis in the horse; the animals affected, and of which so many died, were in fair condition. The indications of disease did not exhibit themselves more than two months, and appear to have been chiefly what may be styled intermitting and suddenly-developed fits of abdominal pain; ability to travel or follow their fellows of the same herd was distinctly lessened, with, in some, coughing, and lameness of the hind limbs, particularly of the left one. Death, as the termination, was usually sudden. In these cases the worms were found entirely in the cæcum, mingled with much fæcal matter.

In all cases where more than one or two animals, particularly young ones at grass or in paddocks, succumb with ill-understood intestinal symptoms, a careful *post-mortem* examination is called for, that the existence of these and several other more common intestinal helminths may not be overlooked.

Treatment.—The existence of *tænia* being suspected or definitely ascertained, their destruction and removal may be counted upon with fair prospects of success, through the judicious employment of such *tæniafuges* as oil of turpentine, ethereal extract of male shield fern, infusion of casso, etc. Any of these agents are rendered more certain in their action when, both preceding their administration and shortly following it, a dose of laxative medicine has been employed. If oil of turpentine is employed, it is best exhibited in half a pint of oil, in quantities from one to two ounces, and repeated in twenty-four hours, to be followed by a moderate dose of aloes after a like interval. The extract of male fern, to the extent of four drachms, with a like quantity of oil of savin, may be given in bolus or in gruel, and repeated two or three mornings previous to the exhibition of the final dose of aloes.

II. NEMATODES.—These are more important than the preceding, and the principal characters of the chief round worms met with in the alimentary canal will now receive attention.

1. *Ascaris megalocephala*.—This is the largest, as well as the most common, of the round worms infesting the bowel of the horse.

Form.—Elongated and cylindrical, tapering towards both extremities, particularly the anterior; the oval opening is guarded by three papillæ or swellings, probably analogous to teeth, and acting as tactile organs. The body is smooth, but marked by fine, transverse striæ or rings. Sexes are distinct. The males are from 6 to 8 inches in length, with the reproductive orifice close to the tip of the tail, from which the spicules are sometimes seen protruding.

The females are from 7 to 18 inches in length, and much stouter ; their reproductive orifice is situated somewhat nearer the middle of the body than in the males.

Habitat.—The entire length of the canal, but chiefly in the small intestines.

Numbers.—Usually several, frequently very numerous, in some instances producing serious results through occlusion or other changes in the canal.

This ascaris of the horse, although resembling the *A. lumbricoides* of man and the pig, is yet believed to be essentially different.

Development.—The eggs, having finely divided yolks, being passed along with the fæces from the horse, are conveyed by various agencies, and find their way into ditches, ponds, and other water supplies, or moist earth. Their vitality is not easily destroyed by cold or drought, and under favourable conditions of warmth and moisture produce minute embryos in fourteen days. Having undergone such developmental phases as change of skin, etc., they appear as free swimming *larvæ* or *vermicalis*, in which condition it is probable they are swallowed with water or fresh fodder. On reaching the stomach or intestinal canal of their host, they grow rapidly and reach their maturity in three weeks.

2. *Strongylus armatus*, or palisade worm. This, although of less frequent occurrence than the preceding, is probably, from its peculiar wandering habits, the cause of more varied and serious disturbances. The existence of this worm has been noticed from an early period, and two distinct varieties named—the *S. armatus minor* of the arteries and the *S. armatus major* of the intestines. These are probably identical, only in different stages of development.

Form.—A comparatively small worm having a round head truncated in front, its opening armed with numerous teeth or denticles; body gradually tapering to the tail, which, in the males of the different species of strongylus, is clad with a variably-arranged bursa. The tail of the females is rather obtuse, and the reproductive opening is situated nearly half an inch from the extremity. The males are from an inch to an inch and half in length, the females a little longer.

Habitat.—The intestinal canal throughout, but more particularly the double colon.

Development.—The formation of embryos in the egg seems to follow the extrusion of these from the parent-worm and the host. The larvæ are possessed of considerable activity, and at first bury themselves in moist earth, where it is stated by those who have watched their development, they remain for two or three weeks, undergoing a change of skin, and shortening of their bodies through loss of their tails. Succeeding this transformation they are believed to effect a lodgment for themselves in an intermediary bearer, probably the larvæ of insects, small molluscs, water-fleas, and such-like creatures, providing this shelter. The changes which they undergo in this situation are not well known. Through the medium of drinking water, or of fodder, these parasite-bearing creatures are transferred to the stomach and intestines of their ultimate host.

From the alimentary canal they bore their way to the blood-vessels, for certain of which they have a selective affinity; while occupying this situation they cause serious injury, usually resulting in aneurism. Subsequently, after remaining in these vessels for a time and undergoing certain changes, they seek to return to the intestine, where they arrive at sexual maturity.

The disturbing influences connected with the presence of these parasites are not confined to their action while located in the alimentary canal; the more extensively distributed, as well as the more serious, are probably those which result from their wanderings from and to the bowel. In young horses, in particular, the tissues of which seem to afford special facilities for

their travelling, they are a fruitful source of fatal results, and they are met with in almost every conceivable situation. I have encountered them in the mesentery, in inflammatory growths in connection with the liver, the diaphragm, and the kidneys, as well as in the vaginalis sheath of the spermatic cord and in the heart sac. In the latter situation they were evidently the cause of death.

Young animals are more liable to be seriously affected with these worms than adults, and they are more likely to be met with when the animals are herded in close contact, in situations where horses have been reared for lengthened periods, seeing ripe ova are, in such conditions, more plentifully distributed than in fresh pastures or where few animals have been located.

3. *Strongylus tetracanthus*, or *four-spined strongyle*.—This parasite, regarded by many observers as less frequently encountered than either of the preceding worms, I am inclined to consider as at least equally common, and when occurring, its effects on the bearer are infinitely more serious than most other helminths which engage our attention. Its presence, although not in every case strikingly attractive, has long been recognised in the horse; but only comparatively recently relegated to the position of a distinct variety, being for long regarded as the young of the *Strongylus armatus*.

Form.—Rather minute, its bulk being well maintained until near both extremities; its head is truncated; its mouth is stated to be armed with a number of denticles, arranged in a circle, outside which is a protuberance or lip furnished with four large spines placed in the form of a cross. The body is smooth externally, and of a bright red colour. The sexes are of nearly equal size, from one quarter to one-half inch in length; the tail of the male is curved slightly forward and furnished with a three-lobed hood; that of the female is straighter and pointed.

Habitat.—In an immature state, in the walls of the colon and cæcum; when sexually mature, in the lumen of the same portions of the intestine. In the former situation, the effect of the invasion is such as to produce extensive change, frequently terminating fatally; the walls of the bowel being much thickened with, in some instances, the formation of disseminated abscesses.

Development.—The ova, which are numerous along with mature worms, are expelled in the ordinary manner from the bowel, while the larvæ—which subsequently escape from the ova—are believed to enter some intermediary bearer, previous to being conveyed into the alimentary canal of the host. From the intestine the immature worms bore their way into the walls of the tube, where they may be observed in great numbers, lying coiled in distinct cavities or sacs, inducing, through their presence, much irritation, leading to fatal congestions and inflammations. In these capsular cavities they remain for a certain time, and undergo certain changes, the more obvious of which are increase in size and, probably, change of skin. Following these alterations, they pass themselves back into the lumen of the intestine, where, rolling themselves, sometimes singly, at others in pairs, in pellets of fæcal matter, they undergo further progress to maturity—finally, quitting this retreat sexually mature, they terminate their existence in the cavity of the bowel. In their perfected condition they are probably less disturbing than when embedded in the intestinal walls.

4. *Oxyuris curvula*, or *pin-worm*.—This worm, of frequent occurrence in the horse, is often considered of trifling moment clinically. It may not be productive of as much disturbance as either of the strongyles previously mentioned, still its power to induce irritation, indigestion, and lowering of vital force ought not to be overlooked. Steady marasmus and impairment of health, I am satisfied, may, in many instances, be directly traced to the presence of these worms.

Form.—Very distinctly made up of two portions, body and tail. The former is smooth externally and fusiform in shape, having fine, transverse striæ. The head is cone-shaped, and the mouth armed with horny plates, or bars, and protrusile lips. The tail, which starts rather suddenly from a gradually-attenuating body, is prolonged, in awl fashion, to a length equal with the body.

Habitat.—The large intestine, the colon, cæcum, and rectum; in the latter, in particular, they are found lodged in their passage from the animal, and where their presence occasions much irritation.

Development.—The ova, on extrusion from the parent worm and from the bowel, do not necessarily require any intermediary bearer in which to lodge previous to settling in the canal of the horse. It seems probable that they are conveyed to their host in a direct manner in food or water, or, it may be, in a dry state. In the stomach or small intestine the shell of the ovum is dissolved, and the embryo set free; in this situation they seem to abide for two or four weeks until they reach sexual maturity, when they proceed onwards to the large intestine, where they remain until discharged in the usual manner. I believe I have seen the eggs, which are frequently encrusted around the anus, and which had been detached from thence and left adhering to prominent parts of the stable, through the rubbing of the affected, being assiduously licked from the object to which they were adhering. In this way, not only healthy animals may be infected, but the host from which these ova have been voided becomes re-infected.

5. *Spiroptera megastoma*, or the *Large-mouthed Maw-worm*.—This worm, with the addition of one or two others which closely resemble it in general and particular characters, although known for some time, have not yet had the amount of attention bestowed upon them which they deserve. We are still somewhat in the dark both as to the relation genetically which these gastric worms bear to each other, and of the mode of their growth and development. Probably, if we were better informed upon the latter point, it might be found that, in a clinical aspect, the entozoa are of greater importance than have hitherto been suspected.

Form.—The *Spiroptera megastoma* is a minute worm, having a whitish-coloured body, filiform in character, and transversely striated. The mouth is round, very capacious, and provided with four lobes, two of which project over the edge of the mouth, and each has two papillæ. The tail of the male is slightly obtuse, spirally twisted, and furnished with membranous wings, which are striated longitudinally. The tail of the female is straight and blunt; the vulva is placed in the anterior half of the body. The length of the males is about 8 mm. ; of the females, about half an inch.

(To be continued.)

NORFOLK AND EASTERN COUNTIES VETERINARY MEDICAL ASSOCIATION.

THE sixteenth half-yearly meeting of above society was held on Wednesday, February 10th, at the Red Lion Hotel, Cambridge.

After luncheon, provided by the President, the chair was taken by G. A. Banham, Esq., F.R.C.V.S., Cambridge.

Members present: J. D. Overed, A. H. Santy, J. Hammond, W. Shipley, T. E. Auger, F. Howard, R. S. Barcham (Sec.).

Visitors: F. W. Wragg (London), H. L. Simpson (Windsor), J. B. Martin, J. F. Simpson (Maidenhead), J. R. Cox (London), Hartley (Lincoln), R. T. Hardy (Sleaford), Captain Russell (Grantham), W. L. Fenner (Clare) Page Wallis (Cambridge), J. Mackinder (Peterborough).

Several letters of apology were received from gentlemen unable to attend including Dr. Fleming, Professor Robertson, Professor Axe, etc., etc.

The minutes of the last meeting having been taken as read, the officers for the ensuing year were re-elected:—President G. A. Banham, re-elected. Vice-Presidents: J. Hammond, A. H. Santy, W. Shipley. Hon. Secretary: R. S. Barcham.

Mr. G. A. BANHAM proposed, and Mr. J. D. OVERED seconded, that Messrs Fenner (Clare), F. Hewson (Royston), W. F. Wragg (London), Page Wallis (Cambridge), and J. Simpson (Windsor) be elected members of the association.

Place for next meeting was fixed to be held at Norwich in July, in the Royal Show week, so as to facilitate the attendance of members and visitors from a distance.

Advisability of inviting the National Veterinary Association to meet at Norwich or Peterborough was, on the motion of Mr. SANTY, seconded by Captain RUSSELL, arranged to be at Peterborough, Captain Russell kindly undertaking to do all in his power to make the meeting a success, so far as Lincolnshire is concerned.

Mr. G. A. Banham promised to convey the invitation to the National Veterinary Association.

A lengthy discussion took place on the coming election of Councilmen, in which Messrs. Banham, Martin, Cox, Simpson, Russell, Santy, and others took part.

The PRESIDENT then called on Mr. W. HUNTING, of London, to read his essay on

THE PRACTITIONER: HIS RELATION TO THE PUBLIC, THE PROFESSION, AND OTHER PRACTITIONERS.

Mr. President and Gentlemen,—I have one great advantage over most of those present in introducing the subject, viz., by being a stranger to the district and to the society. The consideration of ourselves, I find, is an awkward subject; one has to steer clear of egotism, of impertinence, and of even the suspicion of personality. Appreciating these risks, I am forewarned, and hope to avoid them. I am further assisted by the title not confining the matter to ourselves, but to ourselves in relation to others. Perhaps I ought to have read all that others have said on the subject. I have not; in fact, I have wilfully avoided doing so. There are just two books in which you can find a guiding principle for every action in life. Our relations to others, the Bible tells us, should be based on the principle of “doing to others as you’d have others do to you.” Shakespeare lays down a similar principle in the advice given by Polonius to his son Laertes:

“This above all: To thine ownself be true,
And it must follow, as the night the day,
Thou canst not then be false to any man.”

Now, to my mind, no philosopher and no man of the world can possibly improve upon these principles, either in their form or substance.

The difficulty which meets us in putting into practice Shakespeare’s advice is, to be certain when and how we are to ourselves being true. Prejudice, thoughtlessness, passion, and other conditions, too often deceive us, and we soon find arguments to convince ourselves that our actions are right and proper when they are not. Now, a little consideration in cold blood of our position, with its duties and responsibilities, may help us more correctly to meet circumstances when they arise. I have not come down here to lecture better men than myself. I only *start* the subject, and you can then lecture me.

We practitioners have three bodies to whom we are closely related—the

public, from whom we earn our living ; the profession, from which we derive our right and title to practice ; other practitioners, by whom we are surrounded, and whose lives and ours mutually react for good or evil. How do we acquit ourselves in these relationships ? Our duty to the public is to give our best services at a fair price. The mere fact of our practising under the guarantee of a diploma is not, to my mind, sufficient. Our best services require that we should never cease to be students ; that, as our field of observation extends, we should continually increase our experience by bringing to bear upon the facts and phenomena we observe all the scientific knowledge we possess, and that we should not allow our scientific knowledge to become rusty or obsolete, but, on the other hand, make what use we can of the constant additions to exact knowledge recorded in our books and journals.

The art of medicine and surgery necessarily depends upon the science. A man's acts are directed by his thoughts, and no amount of repetition of acts or observations deserves to be called experience unless each act and observation is considered in relation to others of a similar and dissimilar character. The constant administration of certain drugs in certain cases teaches nothing, unless we are sure that the symptoms in each case are due to similar causes ; and even then we cannot fairly value their effect unless we can compare their action with other agents given under similar conditions. Unfortunately, the conditions vary so often that a lifetime may be occupied in arriving at a correct conclusion. Here, then, we have an argument for widening our knowledge, and we do so by utilising the recorded experience of others, comparing it with our own and testing it in practice, if it be not directly opposed to our own observation and reason.

To give our best services to the public, then, requires that we should keep abreast of the times, and no man gives his best who rests in a professional Sleepy Hollow regardless of the progress around him. The man who settles down into a daily routine, contented with the stock of knowledge which gained him a diploma, may be a very respectable citizen and an honourable head of a family, but he does not do his whole duty by his clients—the public. Of the truth of all this the public cannot judge. They can compare him with other members of the profession ; they can appreciate his honesty, his common sense and regularity, but they can form but little idea of how much better he might have been. The public, too, cannot discriminate between tact and talent. They employ a medical man because they do not know themselves what the case is and what should be done. Their ignorance enables a man knowing a little more than themselves to completely conceal his own ignorance. But is this honest ? Is not what is often called tact not more truly described as humbug ? I think there is a dreadful want of moral courage shown by men who are afraid to say “ I don't know.” I have seen such a paragraph as this : “ Sir John Scalpel was telegraphed for, and arrived by the first train. He has carefully examined Lord Charles, and fears that the accident has resulted in a fracture, but declines as yet to give a positive opinion.” Now, that is honest ; but who ever heard of a veterinary surgeon who hesitated to give a positive opinion ? We all make mistakes, and surely the public do not expect infallibility from us any more than the sister profession ? You will reply that as a matter of fact they do, and will call in some one else if we confess to ignorance. There is some truth in the reply, and we have taught them to do so. We sowed, and we are reaping. I do not ask, and do not expect, a young man without an established reputation to take the first step, but I do ask our older members to act more honestly. They would lose nothing by it ; the profession would gain, practice would be rendered easier for the next generation, and the public would get rid of the miserable delusion that veterinarians ought to diagnose all cases at sight.

Our moral responsibility to the public is great. Vast interests are in our hands. The health of the stock of the country is of national importance, and I am proud to say that the profession as a whole have not belied the trust placed in them. When the Cattle Plague decimated our herds we stuck, through good and ill report, to its contagious origin, and we may fairly claim credit for the means taken to stamp it out. Since that time we have educated the stock-owner and legislator, until now we have a Contagious Diseases (Animals) Act, which has protected us from Cattle Plague and Sheep Pox, almost eradicated Foot-and-Mouth Disease, made Lung Disease a rarity, and which will soon, I believe, save us from the loss entailed by Swine Fever and Scab in sheep.

Such services entitle us to gratitude. Our pecuniary aggrandisement would have been better furthered by the existence of such diseases and our constant employment to treat them. But the agriculturist must be short-sighted indeed who cannot now see how much better is prevention than cure, and, arguing from great to small things, how it is his interest to employ the skilled professional in every other matter pertaining to the health of his stock early and often.

We are gradually extending our usefulness, too, by applying our knowledge and experience to varieties of animals which a few years since were unnoticed. The diseases of dogs now afford a special field of practice for many men, and we all are better versed in canine ailments than was the case twenty years ago. The public expect such knowledge, and willingly avail themselves of it. There is room for further extension. The diseases of game and poultry would well repay more careful study, and those of us who possess opportunities for observation and research in this direction should not neglect them, and should record their experience for the information of others.

Our responsibilities to the public are not only moral but legal, and every now and then a case arises which seems to indicate a very hazy perception of the fact in the minds of some of our members. We are not called upon to be infallible, but it is rightly expected that we take due care and diligence in the performance of our work. It is also rightly assumed that the holder of a diploma, when asking for and accepting employment, should be possessed of the necessary skill to properly carry out what he undertakes.

One of the duties carrying with it great responsibility is the common one of examination for soundness.

We are not legally responsible for the absolute correctness of our opinion. Matters of opinion are, in the nature of things, not clearly divisible into right and wrong. Two men may honestly differ as to whether a spavin on a hock is likely to cause lameness or not. They may even honestly differ in some few cases as to whether a spavin exist or not. In neither case is one of these men actionable for a wrong opinion; but when a horse whose hock is unmistakably spavined is passed sound—the defect being patent—then the employer has a right to say there was negligence, and to hold the examiner responsible. Or, take another case: two men examine a horse carefully, and one arrives at the conclusion that he is a roarer, the other that he is not. Given that both men adopted proper means to test the point, and that neither is deaf, no action would lie. If, however, one of them had failed to gallop the horse, and thus did not detect the defect, he would be guilty of negligence, and actionable.

But negligence need not be so specific as this. If a man undertook work for a fee which he was clearly incapable of performing, he would certainly be actionable. If I myself undertook a case of parturition in the cow, I feel certain that I should be unable to meet many difficulties which might occur—the animal might be lost, and I should be actionable if it were proven that ordinary skill had not been shown. I had no right to undertake work for which

I was not qualified, but for which my employer was prepared to pay a fee, trusting to my professional status. Our diploma is a two-edged instrument, assisting us to gain credit, and making us responsible for ignorance and negligence.

The examination of horses, or other animals, for soundness is by no means the only work by which we incur grave legal responsibilities. Every opinion we give must be capable of support, and some are even heavier weighted with pecuniary risks than those I have mentioned. I do not know that any such case has ever been tried, but let us just consider a hypothetical one. I am called to see a horse presenting certain symptoms, and occupying a stall in a yard containing, say, a hundred horses. My diagnosis is Strangles. The owner says: "I am glad to hear that, because my foreman thought it was Glanders, and if so I should have had him killed at once." I reply: "You need not be afraid, we will soon get him well." The result is, the horse does not get well—he gets worse. The disease is undoubtedly Glanders, and within six months a number of other horses infected by him become diseased, and have to be destroyed. In such a case I am clearly guilty of negligence, resulting in great loss to my employer, and I should certainly be actionable. A similar argument is applicable to other contagious maladies.

If a veterinary surgeon possess some special ability outside his profession, let him exercise it, especially if it be for the good of the public or his profession as well as himself. Offices and appointments such as some of us hold on Vestries, Town Councils, and Local Boards add to a man's fame, and reflect favourably on his profession in the district. Some of us possess special knowledge of such matters as breeding, rearing, and feeding animals, and by disseminating such knowledge at meetings or through the press much good may be done.

We all try to avoid serving on juries. Every calling, apparently, does the same, and each is able to adduce some reason why its members should be exempted. Now, I hold strongly that this is pure selfishness, and that, instead of following bad precedents, we should show sufficient public spirit to take our turn at this duty to the State—a duty, be it remembered, constituting one of the greatest safeguards of an Englishman's liberty and independence. Were there no exemptions, the call on our time would be light indeed—probably not once in five years. Little as I worship success in practice, I must own that it indicates some good in the individual. He must either be, or appear to be, industrious, clever, honest, respectable, etc., and the sum of all these virtues gives him a position which is good for him and his family. His position reflects upon his profession, and thus, if he does nothing else for it, he indirectly helps it to an improved social status.

This brings us to the second part of our subject—our relations to the profession.

Since the passing of the Veterinary Surgeons Act of 1881, the profession and the practitioners are more closely united by mutual interests than they were before. Now, the profession really protects us—before it did not. We owe it, then, a heavier duty. We are each units in the whole; we are like bricks in a wall, each sharing in the strength or weakness of the edifice.

I have just said that the public estimate of each practitioner reflects upon his profession. It is evident, then, that one duty to our profession is to obtain as high a place as we can in public estimation. There are some matters, however, which are very differently estimated by the public and the profession—on which just one word.

I have heard it said, a practitioner should not dress too "horsey," and should not put a very high value on horsey knowledge or acquirements. I hold that a man may just dress as his fancy or his convenience suggests, and that any dictation on such a point is impertinence. As to horsey knowledge

and acquirements, I hold you cannot have too much, if by the term "horsey" you mean—relating to horses. This is very important. An old huntsman once described a man as "the horsiest man on foot, and the footiest man on a horse, I ever saw." It is true a man's trousers may be very tight, and his knowledge of horses very slack; but it is more likely to be true that the man who dresses like a schoolmaster knows nothing of the horse or his surroundings.

To my mind, it is extremely necessary for all practitioners to understand, not merely the anatomy, physiology, and pathology of the animals they practise on, but also their habits, peculiarities, and general surroundings. Our clients expect us to know more than they do, and when they find we are unversed in what, to them, are elementary details, they begin to doubt whether we really know more than themselves on the more technical points for which they have sought advice.

Now, when a man is really a horseman, he is likely to put in practice his tastes—riding, hunting, etc., naturally are indulged in. Sometimes, too, he does a little racing, sometimes a little dealing. Why should he not? "The tools to those who can handle them," I say. Done properly, these things are right enough. It is when they are done improperly that discredit attaches to the practitioner, and is reflected upon his profession.

But there are direct duties that we ought to perform to our profession. Our knowledge is not the result of our own labours; it is the recorded and sifted experience of generations. We must not hide our talent; we must use it and increase it. We owe it to our profession to observe accurately and to record frequently. Our veterinary literature is poorer than it ought to be. The stores of information in the heads of practitioners ought not to die with them; they should be recorded for the benefit of the profession. Every man cannot write, but all can talk, and these societies are depôts into which you can all pour the fruits of your riper experience.

Every man who has a pupil assumes a grave responsibility, not only to the youth, but to his profession. He teaches him either to observe or to see, without perceiving. There is no greater mistake than to suppose that the power of observing correctly is a natural gift possessed by every one. Very few men possess it, and it is only acquired by culture and the most careful method. Hasty conclusions and superficial observations are natural, and require to be treated like weeds which grow rapidly—kept down. What the profession wants is men who make their observations correctly, practitioners who really possess experience and are willing to add it to the common stock; in other words, to repay to the profession, with interest, the knowledge they obtained from it.

Our magazines are not supported as they ought to be. Interesting cases are lost for want of a record, and no attempt is made to send or receive short notices of the diseases actually prevailing in different parts of the country. Not only is apathy shown concerning the scientific progress of our profession, but also as to our corporate doings. About half a hundred men really guide the head and hand of our corporate body. They arrange the programme, pull the strings, and the rest of us dance—some in and some out of unison. A little more interest, a little more independence of judgment, a little more active assistance is very desirable.

The local societies are certainly more active and more powerful than they used to be; but I rather fear they do not give the same attention to the scientific progress as they do to the material movements of the profession.

The National Veterinary Association is a body we should all assist. Its members are collected from a wider area than the local societies, and therefore it brings to bear upon all matters discussed a wider and more powerful influence.

By meetings and unions of all sorts, practitioners must gain; by careful observation and methodical recording we assist each other; by taking an active interest in our profession, and recognising our duties and responsibilities to it, we not only repay a debt, but we add to a common stock which, some day, we may find of the very greatest advantage to ourselves.

By being true to our profession we are certainly being true to ourselves.

And now, gentlemen, I have reached my last section—the practitioner in his relation to other practitioners. All that we can say on this subject is included in the unwritten law of professional etiquette. What is professional etiquette? I hardly care to offer an answer, but I doubt whether it is not very nearly defined as a set of rules compiled to render it very difficult for a young practitioner to capture clients from an older one. Beyond the usual courtesies which regulate the actions and sayings of gentlemen, I am very sceptical of the value of corporate etiquette; the rest is trades unionism and snobbishness.

Of one thing I am certain, that no unwritten law will prevent a bad man doing dirty tricks, and that no law, written or otherwise, is necessary to regulate the actions of a good man. When two practitioners know each other well, it is rare to hear accusations on either side of breaches of professional etiquette. When complaints are common, I generally find the two men are comparative strangers, and that they have formed their impressions of each other from the false statements made by stupid, ignorant, or malicious third parties. Getting to know your neighbours is the first step to preserving professional etiquette; and then, unless you are an extraordinarily superior person, you will find that they are men possessed of more brains and courtesy than you expected, and it will be easier to do to them as you would have them do to you.

There are two special events which tax our proper relationship to other practitioners, and these are the only ones I care to refer to—the events of being called in for consultation or for a second opinion. There is usually a great difference between these two events. A consultation, with a veterinary surgeon in attendance, means simply that the client thinks two heads better than one, and that the attending veterinary surgeon is willing, if not glad, to have professional assistance. There is no implied discontent on the part of the client, no confession of bewilderment or ignorance on the part of the attending practitioner; the client may, in fact, be quite cognisant that the man called in to consult is a bigger fool than the man attending, but still wish the two to apply their united wisdom. Now, it seems to me that the last-called-in man too often thinks he is sent for to put the first man right, that the client is dissatisfied with his regular attendant, and that he comes not merely as a second searcher for truth, but as a critic and judge to sit upon what has been done. If this spirit exists it soon makes itself apparent, and then Mr. First-man sets his back up—both become frigidly polite, both fence with question and answer, both think the other is trying to gain an advantage, and a mutually-disagreeable impression is made; whilst the miserable animal and its disease, like a man between two stools, comes to grief. Of course there are cases occasionally when we cannot but confess that an erroneous diagnosis has been made, or most abominably bad treatment been pursued. If the other veterinary surgeon can quickly be made to see his error or change his treatment, our duty is not to take advantage of his mistake, but to assist him in doing what is best for our common employer. If he persists in doing what we are convinced is wrong, it is equally our duty to quietly object to the line pursued, to indicate what we consider the correct one, and to leave the matter to the client's judgment. In some cases there is room for difference of opinion, in some there is clearly no doubt that one is right and the other wrong. It is no part of a practitioner's duty to shield another practitioner

from blame or punishment, when he knows it is but too well merited. It is equally no part of his duty to make statements or offer suggestions calculated to bias the mind of a client against his regular veterinary attendant.

In the case of second opinions, we often do not know until we have given them that any one has given a previous one. We cannot avoid this, nor is there any reason why we should try to. If we know that another practitioner has given an opinion, the only difference we should make in our conduct should be greater care and exactness in forming our own opinion.

That we should refuse to see a case which has been previously attended, except in conjunction with the other practitioner, is carrying professional etiquette too far. If a man asks us casually to give an opinion on a case being treated by another veterinary surgeon, we should certainly refuse, because it may injure the other, and our treatment is not carried out. If we are asked to see and treat a case, I see no objection to doing so; but it would always be an advantage to the client, the patient, and ourselves to meet the man who had previously treated, so as to hear what he had seen and done. This should be suggested to our employer, and if he does not assent, we need not, I think, hesitate to take the case in hand.

Our relations to each other are chiefly matters of good nature and good understanding. By not knowing each other, misunderstandings occur, and then even good-natured men get to loggerheads. You can't make a silk purse of a sow's ear, and when you meet a man made of the wrong material keep out of his way, and even when he treads on your toes show no sign of irritation, or even feeling—if you can.

After some considerable discussion, in which most of the members took part, some interesting pathological cases were introduced, one by Mr. A. H. Santy, a case of Ventral Hernia, which, although very extensive, was completely reduced by the means of pressure.

A hearty vote of thanks having been proposed to the essayist and Chairman, the meeting terminated.

R. S. BARCHAM, *Hon. Sec.*

THE WESTERN COUNTIES VETERINARY MEDICAL ASSOCIATION.

THE third general annual meeting of the above association was held at the Half Moon Hotel, Exeter, on March 18th. J. A. Collings, Esq., the President, in the chair.

There were also present—Messrs. C. Parsons, H. W. Thomas, W. Penhale, Junior, R. E. L. Penhale, J. H. Penhale, F. T. Harvey, G. H. Elder, Ferris, W. Roach, W. P. Chase, and J. P. Heath.

Letters and telegrams of apology for non-attendance were received from Messrs T. Olver, J. Palmer, A. J. Down, W. Ascott, and F. Airey.

Mr. Ferris was proposed by Mr. PARSONS and seconded by Mr. THOMAS, as a new member.

The TREASURER read a satisfactory financial report, which was adopted.

Mr. J. A. Collings was unanimously thanked for his kind, able, and impartial conduct in the chair during his presidential year.

Mr. C. Parsons was unanimously elected President for the ensuing year.

Messrs. Collings, Heath, Thomas, and Olver, vice-Presidents; W. Penhale, Secretary; and G. H. Elder, Treasurer.

The President then delivered the following able inaugural address:—

Messrs. vice-Presidents and Gentlemen,—I thank you very much for the honour you have done me in electing me your third President. I can assure you I fully appreciate your kindness, and know you have conferred on me the highest compliment you can pay to any member of the society. But in doing so, I fear you have not done justice to yourselves, as I am sure there

are many amongst you much better able to carry out the duties than I ; but I hope, with the assistance of our Secretary and by endeavouring to fulfil the trust you have reposed in me to the best of my ability, you will not find at the end of my term of office that you have cause to regret your kindness of to-day, or that our profession in general, or this association in particular, has suffered at my hands.

It has been suggested to me, as the three last papers have appertained more especially to disease, that on this occasion a few remarks relative to our society and a few points of general professional interest, would be not only a change but might lead to what is perhaps not the least enjoyable portion of our meetings, viz., a good discussion. But I am afraid in doing this, I must necessarily lead you over an already well-beaten path, and that I shall be unable to advance to you anything sufficiently new to be of interest. As you are all aware, the idea of establishing a veterinary medical association for the Western Counties was started in 1884, principally through the united efforts of Mr. W. Penhale and the late Mr. T. D. Gregory. You will also remember that at the first meeting called at Exeter, on Feb. 7th, of the same year, the society was formed, and the first President and other officers chosen, and eighteen members enrolled. Since then seven others have joined it. Through death and removal we have to deduct four, leaving now twenty-one subscribing members. But there are still many well known to us who have not yet joined our ranks, and whom we should heartily welcome amongst us ; so that whilst they would numerically and financially be assisting us, they would also give us the advantage of their opinions in all those matters which may from time to time be brought before us for discussion. But our society was not destined to be long in existence before it was to receive its first check. In the death of Mr. T. D. Gregory, we each lost a respected friend, the profession a valued and honoured member, and this society an energetic and worthy President ; and I am sure the vote of condolence you passed was not a mere empty ceremony, but an expression of heartfelt sympathy from every individual member.

But great as was this misfortune, we were again fortunate in being able, at our next meeting, to appoint as his successor Mr. J. A. Collings, in whom a happy choice was indeed made ; and we all know that, whether presiding over our business here, or as chairman or host at the social board, he has performed the duties required of him in so peculiarly business-like and pleasant a manner, that we almost regret that one of the rules of our Association is that a new President shall be annually appointed. We must also congratulate ourselves on the highly practical and spirited manner in which the discussions have been carried out. We have reason to doubt that we shall in the future have no dearth of mental food presented to us, and no danger of dying from inanition.

I cannot let this opportunity pass, either, without expressing (and in so doing I am sure I am only the mouthpiece of you all) our great obligations to our indefatigable Secretary. We have all seen the hearty way in which he has carried out his duties, and has by so doing rendered the office of President, if not actually a sinecure, at all events a much easier one than it otherwise would have been ; and, unless it is to take the President's chair, I hope he may long be spared to carry on the office he now holds. Our financial position I do not purpose to enlarge on, as our Treasurer has already presented us with the annual statement of accounts.

Passing on to matters of general interest to the profession, I think we have some reason to be pleased with the steady rise that is being made in its status. Although we are yet far from holding the position we should wish to do, we have great reason to be thankful to those gentlemen at the helm of affairs, who give their time, energies, and abilities to us ; and although we

cannot always see with one eye, yet I am sure we fully appreciate their desire to so carry out their duties that the profession shall generally benefit.

We have not, I fear, as yet by any means derived, and I speak more particularly as a veterinary surgeon in an agricultural district, so much benefit from our new Charter as was at first anticipated, and, although a future generation may receive greater support and assistance from it, I fear even this is doubtful. At present the one most benefited is the registered practitioner, who is now able to use a title that before he was more than half afraid he was not entitled to, and who in many instances, I know, leads the public to believe that he has undergone some form of examination or other, and that he is now a member of the College. So that, as far as he is concerned, he is raised to a position virtually equal to our own, with the right to be appointed to Inspectorships or any other important offices. But what I think we have much more to complain of, even than this, is that the unregistered men are still called to, and do undertake the charge of cases quite as much as before, and no action is taken to prevent them so doing; indeed, in the absence of a Public Prosecutor, unless the neighbouring veterinary surgeon himself undertakes the unpleasant and invidious task, there appears no one whose duty it is. But even should any one take the trouble to interfere, is there any power to prevent their continuing their pursuits? Cannot they still carry them on with impunity? They cannot, perhaps, claim fees in courts of law, but they can trust to the integrity of their employers, and as, usually, or at least frequently, they are paid at once, they do not fear having to sue for payment. We are therefore, in my opinion, as far as the Penal Clause is concerned, worse off than we were before the passing of the Charter; and it just comes to this, that if we wish to see the profession of which we all profess to be so fond, and ought to be proud of, rise to as high a level as we deem we have a right to demand for it, we must trust to our individual efforts to so qualify ourselves, socially as well as professionally, that we shall deserve the good opinion of the public. If every member would consider that on him personally rests the onus of whether we should, as a body, rise to the position we ought, depend upon it the time would speedily arrive when we should have our desires in this direction fulfilled. The general education of the pupil should also be still further improved, for if the veterinary surgeon is to be a scientific, as well as a practical man, I consider it is impossible to give him too much learning. The better he is educated, the better he will be able to grasp and overcome the many difficulties that, in the pursuit of his studies, he will find lie in his way.

One matter that is at present, and has for a considerable time commanded a great deal of attention, is the ninth clause of the Supplemental Charter. You will remember that it debars after this year all who are not Fellows from serving on the Board of Examiners or as Members of Council. Now I cannot help thinking this a most selfish clause, and one not likely to improve that feeling of good fellowship that should exist amongst us.

We wonder now that more notice was not taken of it before it became law. By the expression of opinion that you gave at a former meeting, I believe you agree with me, and although I feel I could not on an occasion such as this fail to make some allusion to it, yet I don't know that at present anything further can be done to rectify the evil. You will all have seen from last month's journals, that the decision of the counsel employed to give his opinion as to the correct reading of it, thinks that unless a new Charter or Act of Parliament is obtained, only Fellows will be eligible for the positions before mentioned. Now, gentlemen, you may lead an Englishman, but he sometimes objects to be driven; and I am inclined to think that in inserting this clause the very object will be, or indeed has already been, frustrated that it was intended to promote. I believe that many, if this clause were

removed, would be more likely to go in for the degree of their own free will, than they are now that they are told they shall do so or they must give up all hope of attaining those positions that it is only natural that at some period of their lives many of our members might naturally aspire to hold. Does it not seem like oppression that a member who, after a long period of active life, and who has not only in a moneyed sense, but also by his long practical appearance, become peculiarly qualified to represent his fellow-members in the Council, cannot do so unless he again becomes a student, and works up for an examination, whilst he has for many years been an observant student in the best field that is open to any of us? We must not forget, too, that the degree is held by a comparatively small number, and from all appearances that number is not likely to rapidly increase; and as the election to the Council is by vote, surely it can safely be left to the members to return those, whether Fellows or not, who are most calculated, in their opinion, to fairly represent their requirements. It is, however, only by constant agitation that these grievances are to be relieved, and it is therefore perhaps wise that no opportunity should be allowed to pass without making mention of it. Pray understand, I am not speaking against the degree in itself, for I consider that once free from the one objection, it will be of service; and anything that tends to induce further study on our parts is a desirable thing, for it is too often the case that after a student has obtained his diploma, he thinks his education finished, and later on, when it is not so easy to again apply himself, he finds he has made a serious error.

Another subject that we have not heard quite so much about lately, is the question of pupilage; and perhaps there is no point on which such diametrically opposite opinions are held by the teachers themselves. I may say at once that I am entirely in favour of it, and that, too, for a period of at least three years, and not twelve months as so many advocate. How is it possible, I would ask, for a youth going from town life and school at once to college, to understand the general management of cattle and their natural habits; and what more than this can assist him in diagnosing disease? Until a man is perfectly acquainted with animals in health, he is unable to readily grapple with their ailments. I grant you, that if the pupil purposes to eventually enter the Army, or take the management of a stud of horses, or any such position, that he has far greater opportunities to acquire a fair knowledge of this part of his profession at one of the schools, than the one who purposes to seek his living in the country. But our diplomas do not say that we are only fitted for this or that particular branch of our profession, but that the possessor is duly qualified to practise the Art and Science of Veterinary Surgery. Well, gentlemen, is he? Is it not rather to these men—good students and hard-working as they probably have been, and holders, may be, of various medals and honourable distinctions—is it not to the action of such men as these, I say, that the registered practitioner owes the fact that he is held by many worthy of support, rather than the duly-qualified man? And I don't hesitate to say, in many cases, justly so. I am quite sure that to many a practical farmer the want of manipulative ability, and a general knowledge of cattle and their habits, would at once lower any one in his estimation. He cannot, for a moment, suppose that any one so ignorant on these points can be possessed of considerable scientific knowledge, or that if he does possess it, that he is able to apply it to its best uses. It is not a thing to be proud of to be a holder of a diploma, and yet feel that in going into practice you are really inferior to do what is daily required of you, to your more practical, but unqualified neighbour, or as a young man did, to my knowledge, some short time since, call in the aid of a butcher's boy to bleed a cow, that he had made several unsuccessful efforts to do. No, gentlemen, I say this class of our brethren brings discredit to themselves, and undeserved

disrepute to their profession ; and to this same cause is due the continuance of empiricism. Let our members be practically qualified, and they will do more to remove this bugbear than all the penal clauses that can be invented. Many, I know, say he should first obtain his diploma, and then seek practical knowledge ; but, in the meantime, if he is not careful, or has not private means, he is likely to starve or ruin his prospects of future prosperity. Nor do I see if he is to do this, that the Examiners can grant him his certificate, containing, as it would, assertions that they know to be false.

I have heard that there is a probability that in one London school cows are to be admitted to drop their calves, and thus give the student an opportunity to see, at least, a small portion of this individual class of practice. It is most certainly a step in the right direction, and plainly shows that the teachers of this school at least are beginning to think, if they did not before, that some practical knowledge of cattle is necessary to their pupils. If, as some of the teachers affirm, pupils who have served an apprenticeship make the worst students, it only shows one that there have been men sent out into the world with diplomas who ought not to have received them, for if a man is not qualified to instruct a youth in the most rudimentary portion of his profession, he certainly is not capable of upholding his own and his profession's credit by properly carrying out those duties that must be required of him from his clients. I will only say further on this point, that I hope the day is not far distant when compulsory pupilage will be an established fact.

I have already alluded to the fact of registered men being eligible for appointment to inspectorships ; but another idea—the inspection of meat—suggests itself to me. At present, as you are aware, the Medical Officer of Health is the one whose judgment is looked for ; but, in my humble opinion, the veterinary surgeon is the one whose verdict should be taken. He is in every way more likely to be able to give a right opinion than any one else, as it is often only the carcase that can be examined, and it is not impossible for him to make such inquiries into the history of the case as will enable him to arrive at a fair conclusion as to what the animal had been suffering from ; whilst such a course would be entirely out of the power of a medical man. While on this subject of inspectorships, there seems reason to believe that these duties will take an extended form before long, and that dairies will be (in fact, I believe they are now to a certain extent) under the supervision of the local authorities ; and from recent report it appears that it is right this course should be taken. And as we cannot immediately remedy the evils that do exist, it behoves us to, as far as possible, avoid any further error in this direction ; and I therefore think that only duly-qualified veterinary surgeons should receive these appointments, in the carrying out of which great care and tact, as well as sound professional knowledge, will be required to protect not only the general public from any possible transmission of disease from this source, but that owners of animals intended for the dairy from having any undue advantage taken of them, which is quite possible might be the case, if not in the hands of an expert inspector.

I should also, in a cursory way, wish to allude to a matter in which at times there seems to be an awakening as to the evils of, but respecting which we are as a rule far too apathetic, and that is that as yet we are not exempt from serving on juries. It is unfair that we do not in this point stand on the same level as the sister profession, and here again agitation is needed. I cannot fancy that there is a veterinary surgeon in England who would not gladly sign a petition to this effect, and it could readily be done by one or two members in each county undertaking to obtain such signatures ; and that when completed some arrangement, as might be thought best, be taken to have it presented to the House of Commons ; and should it even again fail to produce good fruit, at no distant future “try again.”

For one in our profession to attend at some distant town, whence probably he cannot return at night, and where possibly he may be detained several days, is not only a loss to himself, but may prove an equal one to his clients, and hence indirectly to the public at large.

In cases of veterinary jurisprudence, where we are brought in contact one with another, I fear we do not always acquit ourselves so as to demand public confidence. It is a fact that in what to them appears to be a simple case of soundness or unsoundness, we find our most eminent men going into the witness-box and giving entirely opposite opinions upon it ; and although we are of course at liberty to exercise our own judgment and express our opinions freely, it is necessary that we should always do so with extreme caution. If we look at it from an outside light, it does seem strange that such a variance of views should exist, and yet we always find a champion ready to come forward to endeavour to support a case on either side. You will, I am sure, not think I am making any imputation, but I think great discrimination is frequently needed, and our candid opinion given freely to our clients might at times avoid a lawsuit. I admit it is only natural that, once in a case, we should do our utmost for its success as far as is consistent with the credit due to ourselves and our profession, but no further, and not earn for ourselves the fame that either our consciences are very elastic, or that we are not sufficiently mutually agreed as to be able to say what is or what is not right.

I have purposely avoided making mention of what appears to be deserving of the term of a new era in the scientific medical world—the Germ Theory of Disease. It is a subject that if I felt myself capable of handling, would not be quite in its place in a short paper of this sort ; but I trust one of our members will one day favour us with a paper on such a very important subject, and from which I am sure much benefit would be derived.

There is a matter I would mention as a suggestion, and you will merely take it for what it is worth. It has, I think, been adopted by some societies whose funds are able to bear it, to purchase for the general use of its members, some of those instruments that, from their not being frequently wanted, individual members do not feel disposed to purchase on account of the cost, but which, if belonging to an association such as this, and always to be obtained through the Secretary, might be of service. But, as I said just now, I only hold this out as a suggestion.

And, in conclusion, let me ask you to remember the objects that such societies as this should have in view. It is not only our privilege to watch over the doings of what we may term our Veterinary Parliament, and so from time to time point out to them the assistance we think we require, and are entitled to, and from what source we think it obtainable. Nor is it only from the reading of valuable papers on scientific and practical subjects, and the discussing of them, that we are to look for benefits derivable from such associations. But even more good still it is in our power to obtain ; by meeting together we get some of the rough edges that are, from keeping ourselves too much in seclusion, so liable to form, rubbed off. We lose that feeling of envy and jealousy that too often exists and which can only do harm. Let us feel that in one thing at least we are brethren, and in being members of a noble profession, let us, as one family, do all we can for its advancement and success. Let us remember we must first be united amongst ourselves before we can ask for the confidence of others. Let the one who has attained the highest rung of fortune's ladder feel that it is his duty to hold out the right hand of fellowship to some other deserving but less successful one ; so that by doing a good action to the one, he at the same time shows himself deserving of the position he has attained.

It only now remains for me to thank you for your attentive hearing of these

meagre remarks, the tenor of which you are so well acquainted with, but which, as we are yet in our infancy, we have not had the opportunity of often discussing. I have felt, from the first, my inability to fitly address you, and that in going over the old ground there was great danger of reiteration ; but I have endeavoured, as far as possible, to avoid plagiarism, and trust that from the discussion that will follow you will derive sufficient profit and pleasure to enable you to say that you do not think your time has been altogether wasted in attending this the third annual meeting of the Western Counties Veterinary Medical Association.

A good discussion followed the paper, and it was the general opinion of those present that Clause IX. of the Supplementary Charter should be at once rescinded.

The opinion of the President on the pupilage question was also generally endorsed.

A cordial vote of thanks was warmly accorded the President for his highly interesting address.

It was resolved the next meeting be held in Launceston, on the third Thursday in September, Mr. J. P. Heath kindly consenting to read a paper.

After the meeting the members dined together, and a very enjoyable evening was spent.

WILLIAM PENHALE, *Hon. Sec.*

SCOTTISH METROPOLITAN VETERINARY MEDICAL ASSOCIATION.

(Continued from page 301.)

Although in those days a physician of the two schools of medicine, Count Ercolani declined to enter upon the practice of his profession, from which we may assume that these laborious studies had been undertaken for the purpose of aiding his investigations in the realm of natural history.

The first product of his biological research was published by the Bolognese Academy of Science, in 1842. This was his "Memoir on the Transmission of the Glanders from the Brute to the Human Family." This work, which had involved an immense amount of patient microscopic research, met with an immediate and cordial recognition, and led to the author's election as a member of many of the distinguished academies of Europe. During this period he also assisted in editing the *Medical Science Bulletin* and the *Annals of Natural Science*, which were published under the supervision of Professor Alessandrini.

Ercolani's numerous scientific investigations, and his original and profound deductions thereupon, were sufficient to rank him as a man of extraordinary genius, whose closer acquaintance and friendship were well worth seeking by the scientists of Europe. While his researches were chiefly of a biological nature, he, nevertheless, did not confine himself exclusively to this field, for his intimacy with such statesmen as Count Cavour and Marco Minghetti led him to embrace the study of Politico-Social Philosophy, a familiarity with which was of great importance to him during his subsequent Parliamentary career.

In 1843 he united himself in marriage with Miss Carlotta Sarti, of Bologna. Of this union two daughters were born, but one only reached the years of womanhood.

Previous to 1848, although conversant with the troubled and ever-shifting political affairs of the Peninsula, Ercolani had felt reluctant to identify himself with any issue that would withdraw his mind from his favourite pursuit ; but after Pius IX. ascended the Papal throne, all religious scruples were cast aside, and thenceforth Ercolani boldly avowed his long-dormant principles respecting the necessity for Italian unity, and more especially his utter hos-

tility to foreign rule or interference. His active political career may be said to have commenced with the Austrian invasion of 1848. His service in any capacity whatever was now tendered to the general Government, and in consequence his patriotism and special acquirements were recognised in his selection as Secretary of the Committee of Public Health, which co-operated actively with the national party during that critical period.

Towards the end of 1848 he was transferred to Rome as Secretary to the Supreme Board of Public Health, whose duties he continued to discharge until 1849, when he was elected member of the National Parliament. While serving as a member of the Constituent Assembly under the new Roman Republic, Ercolani directed his most earnest efforts towards the final unification of the several Italian provinces under the sway of one native king. That he was opposed to any form of government but a monarchy, and that his actions at this date were based upon a law of political expediency, is shown in a recent letter to me from Prince Camporeale, of Palermo, in which he says:—"In the Roman Parliament (Constituent Assembly), Ercolani was strongly opposed to the establishment of the Republic, thinking at this time it would have been pernicious (and so it was) to Italy. He showed great energy in opposing all the exaggerated proposals of the Mazzinian party. L. C. Farini, in his 'History of the Roman State,' praises him much. It is true that he took part in the defence of Rome from the first day the foreigners attacked the Republic. From this time Ercolani saw nothing but the necessity of saving the honour of the nation."

Immediate and harsh proscription followed upon the downfall of the new Latin Republic, and, as was to be expected, the name of Ercolani occupied a prominent place in the long list of those against whom vengeance had been decreed. During this dangerous period, while Monarchist and Republican alike were seeking safety in the neutral States, Ercolani made his escape from Rome and sought refuge in the mountains of Bologna. Here he wandered about suffering the severest hardships from hunger and exposure in his efforts to elude the Papal gendarmerie who had been despatched thither to effect his capture or death. In the winter of 1849, he succeeded in escaping from the mountains, and threw himself upon the protection of the Grand Duke of Tuscany. After residing for a time in Pistoia, he found it expedient to change his residence to Florence, where he was comforted by the presence of his family. It was while partaking of a brief repose in this city that he commenced his celebrated "Research, Historic and Analytical, on the Writers of the Veterinary Art."

His residence in Florence was rudely terminated by the action of the Papal Court, for, in the language of his eulogist, "it seemed intolerable that one who had combated the majesty of the Pope should find sanctuary in a neighbouring Catholic State, and so strong was the remonstrance from Rome that the Grand Duke was compelled to expel the patriot from his territory on twenty-four hours' notice."

Quitting Tuscany under the brief and unceremonious safeguard of the Grand Duke, Count Ercolani made his way northward into Piedmont, which was now the only place in the Peninsula where the Italian flag afforded protection. He arrived in Turin early in 1851, and here, in this palatial city, shadowed by the icy domes of the Alps, his fortune reached its most distressing and pathetic stage. As a mournful exile, resting under the all-powerful ban of the Church, with his lordly estates and all other earthly means sequestered, he was doomed to drink "the wormwood and the gall," and to learn in the most sorrowful manner

"How hard it is to climb the stairs of others,
And eat the salt of others on his bread."

This stringent condition of affairs may seem hard to understand, yet it should be borne in mind that many thousands of political refugees had claimed sanctuary in Turin, and among these, multitudes were without food or shelter, and, although the public and private benevolence of the city were taxed to their utmost limits, it was a matter of very grave solicitude to relieve the most urgent cases as well as to furnish congenial employment for so vast and unforeseen an increase in the civic population.

In these sombre hours the genius of Count Ercolani could not be ignored, for his eminent acquirements, and the adverse fortune which had driven him hither, gave him a twofold claim upon the consideration of the patriotic Piedmontese, and were the means of obtaining for him the position of "substitute," or Assistant Professor in the veterinary school of that city. Previous to this appointment, however, the citizenship of Piedmont had been conferred on him by a special decree of the King.

Count Ercolani now resumed his researches in natural history, which were directed chiefly towards the lower and more complex groups of animal life. These exhaustive and conscientious explorations into many of the slighted by-ways of nature were the media of developing elaborate facts not hitherto recognised by the scientific world, and gave him a prestige in Italy similar to that won by Darwin among the Anglo-Saxon people. In 1852 he issued the first volume of his "Researches, Historic and Analytical, on the Writers of the Veterinary Art," the second and final volume of which was published in 1854. This was then, and is still, considered one of the most profound works of its scope ever issued in the south of Europe. During this period he also assisted in founding the first journal of veterinary medicine ever issued in Italy. In this work he was ably assisted by Professor Carlo Lessoni, of Turin.

In 1855, during the cholera epidemic in Salluggio, Ercolani generously abandoned his professional duties and hastened into the infected district, where he gave his whole attention to the relief of his fellow-countrymen until the disappearance of the disease. This, so far as I am informed, was the only instance in his career where he made a practical application of his knowledge of medicine.

In such profound respect was he now held by King Victor Emmanuel that upon the reorganisation of the educational establishments of Piedmont, Count Mamiani, the Minister of Public Instruction, was directed to promote him to the Directorship of the Veterinary School of Turin; thus advancing him from the lowest to the senior professorship. Contrary to the general rule, this flattering advancement met with the approbation, not only of the populace, but of the several faculties themselves.

In the winter of 1861 a sorrowful loss fell upon the now prosperous professor and threatened for a time to deprive the world of his further career of usefulness. This event was the untimely death of his daughter Cæsarina, who suddenly yielded her life under an attack of parturition fever. The indescribable anguish and desolation which followed this bereavement induced Count Ercolani to resign his appointment, and as political changes had at last removed the bar of expatriation he resolved upon returning to his native city. In consequence Turin lost her illustrious adopted son, and Ercolani once more set foot in Bologna, after an exile of fourteen years.

Ercolani's resolution to retire from professional pursuits was of no avail, for upon arriving in his ancient home, the Minister of Public Instruction hastened to appoint him Professor of Pathological Anatomy in the Veterinary School of the Royal University. This appointment was followed by others which were both flattering and substantial. He was unanimously elected Rector of the Royal University, President of the Medico-Surgical Society, Permanent Secretary of the Academy of Sciences, Member of the Superior

Council of Public Health, President of the Agrarian Society, Member of the Provincial Sanitary Commission of Bologna, and, for the second time, member of the National Parliament, to which he was subsequently re-elected no less than three times. Among other important movements, he now proceeded to reorganise the School of Veterinary Medicine, which by the liberality of the province and ample Government grants, soon arose to be the first of its kind in Italy, and probably the most celebrated in the world. He also enlarged and greatly enriched the Anatomical Museum founded by Alessandrini, and, in addition, he provided for a systematic and thorough course of veterinary clinical lectures.

Ercolani may not have been the first to teach the doctrine, but he was the first to insist that a correct knowledge of veterinary medicine was as essential to the prosperity of the kingdom as that pertaining to human maladies.

He strove to elevate and dignify this long-neglected science, and finally succeeded in establishing a law which required candidates for veterinary honours to possess the same qualifications that were necessary to admit them into the regular universities in the kingdom. Had he accomplished nothing else in life this alone would have marked his grave for ages. In bearing witness to Ercolani's literary productions, it is enough to say that he was the author of no less than 136 distinct memoirs, embracing anthropology, biology, medicine, and a vast acquaintance with other lofty subjects. Now, when it is considered that many of these productions fill large quarto volumes overflowing with original discoveries and deductions, we are permitted to form an opinion as to the unbounded resources and ceaseless industry of his mind. To specialise a few of his acquirements, it is stated that "he was a decided microscopist . . . and a passionate follower of both medicine and surgery, as well as of natural history, as shown by his numerous discoveries in the fields of normal and pathological histology, of comparative tetratology, of helminthology, and of pathological anatomy and embryology." His numerous discoveries were not presented to the world until they had been subjected to the most penetrating experiments and comparisons known to modern science; then if his deductions were combated, he sustained them with the same intellectual vigour that had characterised their patient and laborious production. An illustration of this nature is shown in his learned controversy with the celebrated Professor Kölliker, of Wurzburg, Bavaria. On the contrary, however, if any of his theories were shown to be at variance or contrary to more recently discovered facts or logical hypotheses, he yielded at once in the most graceful and liberal manner. An instance of this character is referred to by him in one of his letters to his distinguished American translator and correspondent, Dr. Henry O. Marcy, of Boston. In this communication he states that certain objections of Professors Albini, Palladini, and Ohel, had been of decided advantage, inasmuch as they stimulated him to undertake supplementary investigations, which developed valuable and previously unsuspected features in embryonic life.

Ercolani was equally as loyal to the rights of other authors from whom in his personal judgment the full credit of personal discovery had been withheld. This fact is shown in one of his memoirs, wherein he "avenges" to Senator Carlo Ruini, of Bologna, the honour of having been the first to discover the circulation of the blood. "Noteworthy among his many works," says Professor Cocconi, "are his patient 'Researches on the Genetic History of the Trematodic Worms, and the Adaptation of their Species to the surrounding Fluid,' in which is shown his great skill as an observer and naturalist. 'The Formative Process of the Osseous Callus in the different Fractures of the Bones of Men and Animals;' 'The Interior Structure of the Tendinous

Tissues and that of Fibrous Tissues;’ ‘The Transformation of the Histological Element in the Animal Organism,’ and other works on minute anatomy, attest his skill as a histologist. But the work that obtained most attention from the scientists of both continents consisted of a series of memoirs regarding ‘The Intimate Structure of the Placenta in Women compared with that of other Animals.’ In these observations he was led to determine the unity of the anatomical type, and the nutritive functions of the foetus in all the vertebrates.” It was the latter work which led to Ercolani’s controversy with Professor Kölliker, the results of which form an entire volume of new facts and masterly deductions, which might have remained dormant had not the antagonism of the great German anatomist drawn them into existence.

As to the value of these discoveries, as well as to a brief statement respecting Ercolani’s rank as a scientist, I take the liberty of quoting from Dr. Marcy, to whose discrimination the professional men of England and America are principally indebted for their knowledge of this author’s ripest production:—“The opinions, at a greater or less length, of this distinguished scientist are quoted in nearly all the modern text-books on the subject, and yet so indifferently in many instances, and even erroneously, that it is evident that authors have not familiarised themselves with the elaborate and painstaking efforts of Professor Ercolani. . . . So simple are these demonstrations and the truths derived therefrom—so radically different are his teachings from the time-honoured views still held and so generally taught, that I have felt the medical profession and students of natural history would gladly avail themselves of the opportunity of carefully examining these original investigations. Especially have they seemed to me valuable, because of the attention which the study of the human placenta has received of late by many careful observers, and still more so since their conclusions are by no means unanimous. . . . By these researches is opened an almost unexplored field in the pathology of gestation; this, too, is essentially the medical and more practical side of the subject. In the abnormal development of the placenta and in the modification of the nutrition of the foetus will be found causes hitherto unknown of embryonic diseases and arrest of intra-uterine gestation. Therefore it will be seen that the work of the Bolognese professor has an intimate connection and bearing upon anatomy and physiology, chemistry and pathology, embryology and anthropology, biology and obstetrics. It destroys ancient and classic errors; it demonstrates an important new anatomical fact; it teaches a new physiological function, and clearly shows a simple and fundamental plan of embryonic life. The evident impartiality of the author, as shown in his numerous observations, the multiplicity of facts produced, the modest and conscientious expression of opinion . . . appeal to the unprejudiced reader, and carry conviction that the deductions presented are the results of thoughtful labour, and not preconceived theories which he has endeavoured to demonstrate. The establishment of such facts will cause the name of Ercolani to be classed with the great benefactors of science, and be handed down to coming generations, honoured alike with Eustachius, Malpighi, Morgagni, and other distinguished anatomists of the early Italian school.”

Reference has already been made to some of the high offices to which Count Ercolani was elected by his admiring countrymen. These, however, were not all the compliments which were bestowed upon him, for a man of such supreme abilities could not be overlooked by those in authority; hence we find that he was frequently called to Rome to confer with the Royal Government for the purpose of organising or perfecting plans of national utility, which only men of his judgment and superior training could successfully undertake. “He was selected as a member of the Royal Commission for the Publication of the Classics in the Province of Emilia; and all the

universities of the kingdom, without distinction between medical and veterinary, twice chose him as their representative in the Supreme Council of Public Instruction."

That King Victor Emmanuel fully appreciated Ercolani's patriotism and his devotion to the literary advancement of the kingdom, is shown by the gracious advancement of the latter to the several distinguished orders of knighthood. He was created Chevalier of the Royal Order of Civil Merit of Savoy, Commander of the Royal Maurizian Order, and Knight of the Crown of Italy. "Ercolani was worthy of all these honours," says Professor Cocconi. "He did not seek them, nature having constituted him modest and disinterested. In manner he was affable towards all, and especially so with the young. He was not rigidly bound to routine, although he was scrupulous in the observation of his own professional duties. He was beloved by the youth whom he had as pupils for more than thirty years. He was cordial with friends and inferiors, and strove for the greatest advantage of all without slighting the interests of any."

Somewhere in one of Count Ercolani's works I remember having seen a passage to the effect that "the laborious conquests of human learning are never lost." This simple but pertinent expression has been verified abundantly by the mutations of 3,000 years, and seems particularly applicable to this author's sublime life and works. It may transpire, however, that some of his works will not survive intact. New discoveries in the same boundless field may modify certain of his brilliant hypotheses, and, moreover, it may be shown that some particular features of his research lack elements now unsuspected, but, nevertheless, essential to their ultimate harmonious adjustment; or perhaps some of his masterly deductions may prove to be too free a rendition of what he undertook to interpret from the marvellous cryptology of nature. All these considerations will be "weighed in the balance," and time will do him no injustice, but will touch these labours with a gentle hand, even as a harper stretches his open palm upon the quivering wires to modify their melodious cadence. Finally, it seems that Ercolani's works are both worthy and certain of earthly immortality, for, so far as human wisdom goes, he builded in accordance with immutable laws.

A study of Ercolani's life, from the abundant memoirs, manuscript material, and letters at command, discloses that the most potent factors in his character were his abiding love and true-hearted sympathy for humanity. He was a nobleman, so born under the decree of a bygone Pontiff; yet noble he was even without ancestral rank, for so he came fresh from the hand of God, and so he lived through a brilliant but somewhat sorrowful life. All he claimed or aimed to be was simply a man, and with men he strove for his daily bread. Hence his works and noble brotherhood are the inheritance of a common humanity, and not of one country or one time, for neither political boundaries nor the unseen walls of different speech can circumscribe his fame, which, like the winds and the waves, gathers renewed vigour as it passes onward within the influence of alien zones until it finally reaches the "four corners of the world," and then—

"The echoes roll from soul to soul,
And grow for ever and for ever."

1817 to 1883 :—A long, active, and highly honourable pilgrimage for Count Giovanni Battiste Ercolani. But now the great and solemn time was drawing nigh, for at the dawning of the year a treacherous malady (Epithelioma) had seized upon his system, and "the gentle science to which nearly three-score years had been devoted was now powerless to relieve her loving disciple." The last work of his life was completed during the few months that preceded the end. This is now before the world in the form of his letters to Professor Kölliker.

As Ercolani's first undertaking had been for the benefit of the world, so even was his final act, for his splendid library of manuscripts, codices, and rare editions—a fortune in itself—was modestly bestowed upon the city of his birth.

During his final illness, he had on several occasions expressed a desire to be buried without unnecessary ceremony and expense, and, as the subject was taken up by the daily journals, he requested his nephew to communicate his wish to the Mayor ; but the latter, mindful of Ercolani's worth, replied, "Bologna must do her duty, and I cannot prevent the Bolognese from showing the honour due to her illustrious citizen."

Concluding, the PRESIDENT said : Mr. Thompson, of Aspatria, a student of my own, who died the day before his intended marriage, was a hard-working student and a great lover of his profession—too bold, perhaps, in his association with animals, and perhaps, had it not been for this, he would not have met his death. Mr. Walker was the gentleman who succeeded me in Bradford, and who died after being there for sixteen or seventeen years. You all, I am sure, regret their loss and sympathise with their families.

I will now take notice of the political aspects of our profession. There was an article in the last VETERINARY JOURNAL which dealt with the Indian Veterinary Service, and it was there stated that the Indian Veterinary Department was to be diminished materially, and that the duties which ought to be performed by veterinary surgeons are to be performed by others. This is very much to be deplored, and I have no doubt the Indian Government will very soon find out its mistake, for it has followed as a rule that, where large companies interested in large studs, or large flocks and herds, have departed from the employment of the veterinary surgeon, immense losses have followed. I have several instances in my mind at the present time where large companies have ceased to employ veterinary science and employed retired farrier majors, and so on, and I think these will be the people employed in India. I do not wish this to take place, and, if it be true, it is a thing to be very much regretted, and I trust no veterinary surgeon connected with Edinburgh—and that is hinted in the article*—has had to do with this movement in India.

I hope the treatment of veterinary surgeons in this country will soon alter for the better. Look to any continental city, and you find that there honours are heaped upon veterinary surgeons. Was ever an honour offered to a veterinary surgeon in this country? There has only been one in my lifetime. When the tercentenary of Edinburgh University was held, I hoped—not for myself, because the University of Edinburgh would not give me, as I am now situated, at the head of a private school—I hoped patronage and support would at least be given to what was considered a public institution. I thought my *confrère* at the old college would be recognised and receive some honour which he was certainly entitled to, but I was very much disappointed. Our profession is simply ignored in this country, while on the Continent many of the profession are leaders in science, and hold the highest positions in the State connected with science. (Applause.)

Professor WALLEY : There is one duty which ought not to be passed over. I think we should pass a vote of condolence with our friend Mr. Thompson in the great loss he has sustained in the death of his son. I move that the Secretary express to Mr. Thompson the heartfelt sorrow of the Society which they feel for him in the loss he has sustained.

Professor W. O. WILLIAMS, the Secretary, seconded, and the motion was agreed to unanimously.

Mr. RUTHERFORD moved a vote of thanks to the retiring Secretary, which was carried amid applause.

Professor LEWIS returned thanks.

* There is no such hint in the article referred to.—ED. V. J.

Mr. CAMERON drew attention to what he termed a case of commercial jurisprudence in connection with cows, where a cow was bought at an auction mart and warranted. The animal afterwards turned out a kicker, and the sheriff had decided that such a tendency could not be included in the warranty. He thought it should have been included to ensure that the dairy-maid could approach the animal with safety, and that the judge had made a mistake on the subject.

The members did not express their views on the subject, and this being all the business the meeting terminated.

The Dinner.

The members of the Society, to the number of about thirty, afterwards dined together. Principal Williams occupied the chair. The croupier was Mr. Burnett, Maybole.

The CHAIRMAN having given the loyal and patriotic toasts, Mr. CUNNINGHAM proposed "The Royal College of Veterinary Surgeons." In doing so he took occasion to point out that the Council was composed almost exclusively of southern members, and an Examining Board similarly constituted could not be satisfactory. They wished the Council every prosperity, and would only hope that they would show a little more common sense in their management. (Laughter.) The toast was coupled with the names of Principal Walley—who, he said, had done very much to popularise their Society—and Mr. Rutherford, the father of vaccination, a subject to which too little attention was paid in the country. (Applause.)

Principal WALLEY and Mr. RUTHERFORD, in responding to the toast, criticised the arrangements of the Royal College as regarded teaching and licensing.

Professor MCQUEEN, Glasgow, also condemned the manner in which the College proposed to encroach on the profession by restricting the members of Council to Fellows, a barren honour that was coveted by none of them.

The CHAIRMAN said what they had to do to test the question was to elect a member of Council, and then have it decided in a court of law whether the Royal College could override the privileges granted to the profession by their charter of 1844. (Hear, hear.)

Mr. WM. ANDERSON proposed "The Scottish Metropolitan Veterinary Society," for which the CHAIRMAN replied, urging them to stand firmly together, and they would overcome the narrow-minded and egotistical ideas of the Fellows of the Royal College of Veterinary Surgeons. (Applause.) The other toasts were "Kindred Societies" and "The Visitors."

W. OWEN WILLIAMS, *Hon. Sec.*

SOUTHERN COUNTIES VETERINARY MEDICAL
ASSOCIATION.

THE annual meeting of this Association was held on the 31st ult. at the First Avenue Hotel, London. Mr. J. B. Martin, of Rochester (President), took the chair, and there were also present:—Professor Robertson (Royal Veterinary College), Messrs. Barford (Southampton), W. L. Simpson (Windsor), Wragg (London), Edgar (Dartford), Legge (Dorking), Hollingham (Tunbridge Wells), Hogben (Folkestone), Shipley (Yarmouth), and Simpson (Maidenhead), etc.

The minutes of the previous meeting were read by Mr. Hollingham as Hon. Secretary, and were confirmed.

In reply to a question,

The CHAIRMAN said that the delay in the proposed prosecution of a man named Tidmarsh, under the Veterinary Surgeons Act, was owing to the

Council. The correspondence with that body took over six months, and consequently the time elapsed within which proceedings should have been taken.

Mr. J. SIMPSON (Maidenhead) said the Council proved themselves to be but human. They fell into the same error the President did, and seemed to be unaware that action must be taken within six months. The President seemed to be quite unaware of that himself until he consulted a solicitor after the consent of the Council had been received.

The PRESIDENT: No; I did not delay so long as that. We should have taken action ourselves, but we could not without the consent of the Council, and when we had their consent I went to a solicitor at once. The Council have their solicitor, and had the same opportunity of ascertaining the law that I had. We were willing to spend the money as a test case if they had given their permission.

Mr. SIMPSON (Windsor) defended the Council. The Act of Parliament was a new one, and it was necessary to act circumspectly under it. The Council only met quarterly, and no doubt Mr. Martin's letter was considered at the first meeting after its receipt. Then it had to be referred to a committee, and the committee had to report at the next meeting of the Council. As soon as that was done Mr. Martin was communicated with. This was the first case under the Act, and it did not say a great deal against the Council that time was allowed to elapse, because, as a matter of fact, it was not stated in the Act that proceedings must be taken within six months. This was regulated by the Summary Jurisdiction Act. No doubt, now there would be a committee appointed to sanction proceedings in such cases without reference to the Council. It was a misfortune that there should have been a miscarriage of justice in this case, but he (Mr. Simpson) did not think the Council deserved the castigation they had received at the hands of Mr. Martin. He did not believe the Council did things in a slovenly or unbusinesslike manner; its duties were, he believed, managed properly, but public bodies could not move like individuals.

The PRESIDENT: Do you think it would be wise for the Council to have a committee to consider urgent cases like this?

Mr. SIMPSON: I think the Council will have a committee for these things.

Professor ROBERTSON suggested that the attention of the Council should be called to the delay which had occurred in this instance, owing to which a very good case had fallen through.

After some further discussion, the following resolution was, on the proposition of Professor ROBERTSON, seconded by Mr. WRAGG, unanimously adopted: "That a communication from this society be sent to the Council of the Royal College of Veterinary Surgeons, drawing attention to the fact that the prosecution of Tidmarsh was allowed to fall through in consequence of the proceedings not having been commenced within six months of the commission of the offence, and urging that in future the Council should take such means as will ensure matters of this kind being promptly dealt with."

The CHAIRMAN then said it had been arranged that some amalgamation with other societies should take place as regarded the election of Members of the Council. In the North an organisation had been adopted which excluded London and South County people from acting as Councilmen, and now it was proposed that the southern societies should organise themselves for the purpose of voting for Councilmen. The societies which had agreed to amalgamate for this purpose were the Central, the Royal Counties, the West of England, the Norfolk and Eastern Counties, the Lincolnshire, and the Southern Counties. It had been arranged to support Mr. Barford and Mr. H. L. Simpson in May, only these two gentlemen having been named so that there might be a certainty of success.

Mr. WRAGG proposed that this society amalgamate with the other societies mentioned in trying to secure the return of Messrs. Barford and H. L. Simpson to the Council in May.

Mr. EDGAR seconded, but suggested that the resolution should have been so worded as to cover a permanent amalgamation for the purposes of these elections.

The CHAIRMAN said there was a tacit understanding that the amalgamation would be permanent.

The resolution was carried.

The PRESIDENT then proposed that Mr. Barford be elected President of the society for the ensuing year. Mr. Barford had taken as much interest in the society as any man; he was one of its first members, and was entitled to the honour of presiding over its deliberations in the ensuing year.

Mr. SIMPSON (Maidenhead) seconded.

Mr. BARFORD said he did not wish to shirk the duty, but he would rather decline the office if there was any fear that the distance he lived from most of the other members might be a disadvantage to the society.

The PRESIDENT replied that Mr. Barford was as regular an attendant at the society's meetings as anybody.

The proposition was carried unanimously.

The HON. SECRETARY proposed that Messrs. Wragg, Legge, Martin, and Edgar be the Vice-Presidents for the ensuing year.

Mr. BARFORD seconded, and took the opportunity to very sincerely thank the society for electing him its President. He would be pleased to do what he could to further the interests of the society, though he felt great diffidence at having to follow so very able a man as Mr. Martin.

The proposition was carried.

Mr. WRAGG proposed the re-election as Hon. Secretary of Mr. Hollingham, who had carried out the duties in the past very efficiently.

Mr. HOGBEN seconded the proposition, and it was carried.

Mr. HOLLINGHAM proposed that Mr. H. Hogben be Treasurer for the ensuing year.

Mr. BARFORD seconded. Carried.

Mr. HOLLINGHAM moved, and Mr. WRAGG seconded, that the next meeting of the society be held on the 30th of June, at Southampton. Carried.

Mr. SIMPSON (Windsor) moved that the dates of the society's meetings be forwarded to the *Veterinarian* and the VETERINARY JOURNAL as soon as fixed.

Seconded by Mr. BARFORD, and carried.

Professor ROBERTSON then read a paper on

REMARKS ON THE NATURE AND ETIOLOGY OF SOME DISORDERS OF BONE NUTRITION IN ANIMALS.

Until a comparatively recent date, the opinions regarding diseases of every description affecting bone tissue were such as tended to place them outside the range of morbid activities met with in other structures. We are now, however, disposed to look upon such changes as in all essentials similar, wherever their situation, only modified by the speciality of the structure of the tissue involved. In bone the processes known as *disease* and *repair*, tending severally to destruction or the attainment of sanative results, are probably the same in all essentials to like actions carried on in other varieties of connective-tissue structures, the filling of the meshes of this tissue in the former only acting in a modifying manner.

Even to careful observers, it is probable that the most attractive feature in all disturbances occurring in connection with bone is its chronicity. This is more distinctly noticed in all disorders of bone tissue which are in any way

related to the process known as inflammation, either as an initial diseased process or as a sequel of it. This fact of chronicity in the development of disease, and the relation of the mineral matter to the tubular and reticulated organic constituent, is so far an advantage, from affording us a perfectly tangible and wonderfully enduring exhibition of the effects of the diseased actions. This, we find, affords us the opportunity of studying disease in its results, after it has passed away or terminated in the death of the subject, more perfectly than in most other tissues.

In directing your attention for a short time to-day to some disorders of bone tissue to which, probably, all classes of our patients are liable, I will eliminate from our consideration that great group of disturbances which are usually spoken of as inflammatory in their nature; also all which ordinarily follow from this perverted action. This great group in all our patients may, in a general sense, be regarded as resulting from *traumatism*, in some form or another.

Those upon which I desire to offer some remarks are dependent for their existence on causes more properly systemic or constitutional, or at least non-traumatic. Some of these operating agencies are, in particular instances, appreciable and not difficult to comprehend; some appear as congenital, being received as an inheritance in some way from progenitors, while others have undoubtedly been acquired during the lifetime of the suffering animals themselves. Many are occult, difficult to connect with exogenous or endogenous conditions, while all are, in the details and modes of their operation, liable to be erratic, and are apt to be misinterpreted.

From the frequency of their occurrence during the primary growth of bone structure, as well as because these disorders are essentially those of disturbance or change in development, we generally speak of those non-traumatic lesions as "disorders of nutrition."

Frequently these disorders of bone nutrition are encountered in the different varieties of our patients as enzoötic rather than as sporadic affections; in their course, also, they are annoying or destructive—not from the number of their victims merely, but from the difficulty we find in connecting them with what we regard as adequate causes.

Although we may not, in many instances, be able to particularise the precise agent operating in the induction of these disorders, or to follow in detail the method by which it ensures its destructive results in the animal affected, there is yet very evident, in many cases, the existence of certain lines along which these adverse influences travel. With certain classes of animals artificial interference, both as respects breeding and general management, is borne with comparative impunity. Those which submit to this interference with greatest reluctance are generally the largest sufferers from this class of bone diseases. Or this fact may be stated in another form—viz., that the more extensively we manipulate animals, and the greater our interference with their ascertained dispositions and habits, the more we render them liable to disorders of bone nutrition. This statement seems borne out by observation over a large field—whether it be with animals which are usually recognised as the subjects of domestication, or those which mere convenience or pleasure has removed from freedom to captivity. A recollection of this fact, in dealing with the condition as affecting our particular subjects, is of service in the framing of preventive measures on a large scale.

Although, then, every species and all varieties of animals may be regarded as liable to these disorders, we find that in daily experience they are differently brought out and exhibited amongst the larger and smaller animals of both farm and kennel.

In further dealing with this matter, I will confine my remarks (1) to that disturbance in bone nutrition known as *Rickets*, (2) to the peculiar fragility

and want of cohesion in bone structure, indifferently spoken of as *Mollities Osseum* and *Fragilitis Osseum*; (3) to the state of rarefaction in the bones of the horse known amongst veterinarians as *Osteo-porosis*.

I. *Rickets*.—From 1650, when Dr. Francis Glisson published his treatise on Rickets, many able monographs on the disease, as appearing in the human subject, have been published, and much time has been spent in investigating its pathology and treatment. In the lower animals, although the disorder has long been recognised, it has attracted less attention, probably from the fact, first, of its appearing less frequently amongst those which have been long subjected to domestication, and, second, that, when occurring, its fatality was not such as to attract universal attention.

In medicine, as in some other branches of study, there is a tendency at the present to simplify classification and to gather under one term conditions of closely-allied natures. This tendency you will find exemplified in attempts which have been made to group, under the name of *Rickets*, several disorders of bone nutrition hitherto looked upon as distinct. How far this may be warranted, we will be better able to judge when the conditions under which these disturbed activities are met with have been considered. If we adhere to the definition of the term, that *Rickets* is essentially a condition in which there is, with much proliferative activity, an extensive preparation for ossification, with a limited performance of the process, we will be led to regard it as truly a disease of infancy and youth only, and to exclude from its embrace those changes in the bones of the adult which a less restrictive definition would include. Regarding Rickets merely as a form of Atrophy, the more obvious changes in which are a disturbance of the relations which, in normal bone, exist between the earthy and organic materials, with some alterations as to character, and more as to amount of the former, a tolerably rational explanation may be afforded of the varieties of its manifestations, even when we include those changes in adult bones not usually grouped under the disease. In these considerations there will fall to be regarded the age of the animal, so that with little reservation we come to speak of *Rickets of early life*, *Rickets of early maturity*, and the *Rickets of adult life*.

Subjects of Rickets.—As usually understood, this disorder of bone nutrition is chiefly to be looked for in early youth. It may be encountered amongst every species of animal which comes under our observation. The species which is the greatest sufferer seems to vary with location, breeding, diet, and other extrinsic influences. Although appearing in early life, it has not, I believe, been regarded as congenital. This I am disposed to doubt. In lambs, where, on certain soils, Rickets is very destructive, and in them chiefly affects the axial skeleton, exhibiting its characteristic feature in the form of Paralysis, many of these are born unable to rise, most probably from the same cause that the paralytic symptoms develop at a later period of life—viz., from spinal pressure, the result of bone changes in the segments of the neural canal.

In all animals in which I have observed the progress of this disorder, with the exception of young sheep, the bones which have been the subjects of change have been those of the appendicular skeleton chiefly. With lambs the difference of situation is marked; here the axial skeleton is mainly invaded. Owing to this difference of the bones attacked, we account for the variety and peculiarity of the symptoms exhibited.

Outward Manifestations of the State.—Seeing there is a wonderful agreement amongst all observers as to the outward manifestations or symptoms of the disease in all our larger animals, I will spare you their recital. The most characteristic are the changes in appearance and character of the long bones. With some the shafts are atrophied and distorted, partly from inability to support the superincumbent weight, and partly from muscular contraction.

Others, again, do not exhibit this bending of the bone in its entirety, but all are marked by swelling of the joints, from enlargement of the epiphyses. With many there is evidence of unrest, probably from pain in the bones, and more or less lameness. In a few there are decided indications of general derangement and ill-health, with special disturbance of digestion ; while in well-established cases the general appearance of the creature, and the impression conveyed to the observer, is that of stunted or distorted growth and imperfect development. Rarely do the other bones of the skeleton, although affected, exhibit changes so extensive or attractive; nor do we usually observe that the bones of the trunk suffer distortion to such an extent that the contained viscera of the different cavities are either displaced or permanently injured. Amongst lambs, where the locality of the lesion is somewhat different from what we observe in dogs or the larger animals, the chief and diagnostic indications are those which proceed from disturbed motorial power. In many instances where the disease appears as an enzoöty, numbers of lambs, although of full size, and carried the full time, are never able to rise, from their birth. With the greater number, however, the evidence of defective movement of the posterior parts most distinctly exhibits itself when the lambs have reached a few weeks old, while a certain portion may appear well enough for a much longer period. In cases where this affection is known to exist, a little careful watching will soon detect the affected. On any little excitement or attempts to gambol, the animals will stagger or fall over ; while, in making an attempt to run, the hind parts cannot be brought forward in conformity with the fore limbs, nor with the will of the sufferer. From the difficulty of moving with ease, lambs suffering from this disorder are disposed to rest much, only rising in response to the calls of nature. When other adverse conditions of a climatic condition exist, many of these creatures become affected with joint disease ; the disposition to rest on the damp ground, together with defective alimentation, favouring the induction of joint-disturbance.

As regards older sheep of the first year which become affected with this weakness of the loins, they are chiefly those which from their infancy have been reared, for intervals at least, on the situations subject to it, or whose dams during pregnancy have been similarly treated. The disposing influences have not, in their case, been powerful enough to determine its appearance when lambs ; but being to some extent continued, will still, as hoggets, claim a certain number of victims.

(To be continued.)

NORTH-WESTERN VETERINARY MEDICAL ASSOCIATION OF MINNESOTA.

THE North-western Veterinary Medical Association held its fourth meeting in the lecture-room of the North-western Veterinary College, Minneapolis, Minnesota, on December 8th, 1885.

The President, Dr. Lyford, in the chair. There were also present : Messrs. Geo. Sermon, J. J. Bradley, B. A. Pomeroy, Richard Price. Apologies for non-attendance were received from Messrs. D. S. Browne, Genoa, Ill. ; J. F. Ryan, Chicago, Ill. ; Wm. McEachran, Winnepeg ; R. C. Mason, Winona, Minnesota.

Messrs. R. C. Van Nest, C. O. Burnham and S. D. Brimhall were elected members of the Association.

A communication was then read from Mr. E. R. Forbes, U.S.A., stating that the petition to the Adjutant-General (a copy of which had been received for signature by the members of the Association at its previous meeting) had been disapproved, and that a new one would be drafted by Mr. J. Tracy, U.S.A., petitioning the elevation of the present status of veterinary surgeons

in the U.S. Army, copies of which will be forwarded to the Association for signature.

Dr. C. C. LYFORD then read the following paper on

“BURSATTI.”

MEMBERS OF THE ASSOCIATION, CONFRERES, AND STUDENTS,—Before entering upon the consideration of this subject I cannot but preface with a few words relative to this important disease. For the interest that should be taken in this disease by the members of this Association should be, at least, in proportion to the extent of the disease in this locality, which is by no means limited to the number of cases which appear each season. So far as I have been able to learn, it has not been recognised elsewhere in this country, or in any other country except India, although here, in but a limited area so far, it seems to be confined to the neighbourhood of Minneapolis and St. Paul, with the exception of a few isolated cases, which migrate each year.

Under these circumstances the question naturally arises, Why should this disease appear in two localities so far distant from each other as India and Minnesota, and under such different circumstances, and without the least sign of the disease in any of the intermediate localities? How long this disease has been prevalent in this vicinity is more than I can as yet ascertain. The disease has, prior to Mr. Robertson's late work, only been known of through our veterinary journals, especially the one edited by Mr. Fleming.

The true nature of Bursatti seems to be still a mystery, hence should receive our closest attention and consideration: 303, Robertson's “Medicine.” Its name is derived from the Indian disease having connection with the rainy season, hence “bursat” (rain.) There seems, even now, a difference of opinion as to in which season it is most prevalent. Some think before, others after, or during the rainy season; so far as my experience goes, in this country it seems to make little difference, whether before or during the rainy season, or even if no rainy season follows, for it seems to return each year with hot weather at the time flies are most prevalent.

I first noticed this disease during the summer of 1880, appearing early in June, and lasting until late in the fall, some cases into the latter part of November. I met with but few cases during this season, and most of them of a mild type. The summer was comparatively dry, though unusually warm. The following summer of 1881 was about as dry until September, when it was followed by a very wet season, lasting some three months. Flies were unusually bad from early in the season, and cases of Bursatti were more numerous and aggravated than the year previous, commencing late in May, and some lasting until snow fell. Many of these cases were of a very severe nature, some of the ulcers reappearing on the same subject as the year before, and a few on the old cicatrices.

No. 1. This case was a pony, the entire right side of whose face from eye to nostril was, at the beginning, studded with a number of small Bursatti ulcers, which later became confluent, the surface of which was beset with small yellow fibroid bodies, some of which became caseous and even calcareous, varying in size from a pin's head to a filbert. Upon the left hind leg was also an extensive ulcer from hock to fetlock on the entire outside, having originated from an injury caused by a broken shaft abrading the surface, Bursatti having subsequently set in. This case being in my infirmary for six weeks, I had a good opportunity to try different remedies, and learn how difficult the disease was to manage even under one's own supervision, and under circumstances which would be otherwise favourable, for not only would this animal abrade and lacerate the surface during the

day when the flies were bothering, but whenever he could slip, break, or otherwise loosen himself from his halter, he would then rub and bite the parts until they were a mass of raw flesh.

No. 2. This was a large draft horse, weighing about 1,600 lbs., belonging to a firm who had some fifty horses in the same stable. He was the only one showing signs of the disease, having but one ulcer, which made its appearance midway between the shoulder and hip, on the right side. The first that was noticed was a swelling about the size and thickness of a man's hand, which caused the animal a good deal of uneasiness from the itching of the parts, so that he had to be restrained from biting and rubbing. About the third day after first noticed the swellings showed the moist appearance of these ulcers, having the characteristic albuminous or grumous discharge, which continued some three months, and the sloughing extended until it became some eight inches in diameter, and the external surface of three or four ribs had been laid bare. This healed only as cold weather came on.

No. 3. This was a brown gelding belonging to Dr. French, and was brought to the College Infirmary Sept. 29th, 1882. Upon examination I found the glans penis considerably enlarged and studded with numerous watery growths, evidently of the papillary variety; while on the extreme end of the glans penis was a caseous or fibroid mass, equal in size to a large filbert. This on removal left a deep sulcus, ragged and angry in appearance. The parts were dressed with iodoform and antiseptics until October 2nd, when the animal was returned to the infirmary, and the penis amputated. The parts seemed to do well, healing rapidly, and giving no indications of trouble until about November 1st, when it was noticed he was having trouble, voiding his urine. On the 11th of November he was cast for examination, to determine whether advisable for amputation higher up. The lower end of the urethra was found almost entirely obstructed with apparently unhealthy excessive granular masses. The owner not wishing the animal to suffer further, and deeming it of a cancerous nature, ordered him to be destroyed, although to all appearances the animal was otherwise in good health. Immediately after the shooting of the horse an autopsy was held, whereupon only two lesions were found in the urethra, above that already spoken of. These were simply abraded surfaces in the canal (about one-half an inch in diameter), and besides a slight irritability of the bladder, nothing was found in the internal organs except one small kunker in the right kidney. Dr. Hunter examined a portion of the parts first amputated, and pronounced it of a cancerous nature.

No. 4 was that of a brown gelding (1883), used on a stone jigger, who had injured his front leg from knee to foot, by passing it under the door of the stable during an attack of colic. Thinking the injury to be only of a mild nature, the owner paid little attention to it, though covered it with cloth. The animal being able to stand on the limb, and to walk without lameness for the first week, was worked for some three or four days though the weather was severe, the ground frozen and rough—this being followed by a heavy fall of snow, and extremely cold weather. I was called in to attend the case ten days after the original injury had occurred, finding the animal unable to stand on the affected limb. Examination revealed one confluent ulcer from foot to knee, the bone being bared some six inches on the lower end of the large metacarpal bone, and the external lateral ligament of fetlock joint being lacerated, allowed dislocation of the fetlock.

No. 5 was that of a grey gelding, belonging to a logging firm, and was at this time (January 1st, 1885) in the woods some ninety miles north of Minneapolis, and had been used until three days previous to my arrival at the camp hauling logs. The first notice of the animal's suffering from any disease whatever was at noon, when he was seen to refuse his food, and when

the bits were replaced in his mouth the tongue was found badly swollen on the under surface. I reached the camp January 2nd, at 9 a.m., the thermometer standing at 53° below zero. I found the animal in a log hovel used as a workshop, which they were attempting to heat by a large cast-iron stove, but which seemed next to impossible to do; for as the upper atmosphere would become heated a cold draft would pass along the animal's legs and body, which induced most unfavourable complications. On examination the tongue was found protruding some four inches between the incisor teeth, and from his mouth an abundant flow of saliva, offensive muco-purulent discharge. Upon opening the mouth, the tongue was found swollen from tip to base to such an extent as to entirely fill his mouth. The under surface of tongue at junction of the "frænum" showed indications of sloughing, being bulged and of a gangrenous nature around the edges of the swelling, the centre of which was more of a yellow cast, and discharging an albuminous fluid.

No. 6 was a mule belonging to the North Star Fuel Co. of this city, which was presented at the College Infirmary for examination August 3rd, 1885. I found the animal suffering from several Bursatti ulcers, one on respectively a hind and a fore-leg, which had been abraded by interfering; another on his shoulder and one under his abdomen.

No. 7 was a mule belonging to the Minneapolis Street Car Co., which I was called to examine October 17th, 1885. The animal had worked during the forenoon, but on removing the bit from his mouth the tongue was found badly swollen. At the time when I examined him (3 p.m.) the tongue was protruding from his mouth laterally, and was discharging profusely saliva mixed with a ropy grumous fluid so characteristic of this disease. Opening the mouth the tongue was found swollen similar to "No. 4," though less extensive, and the animal breathed very fast by spells, refused food or drink, pulse somewhat accelerated, being sixty beats to the minute, and temperature but slightly elevated, standing at 102 .

The histology and nature of this disease I will not take up your time here to enter upon, as the pathology of it is yet an unsettled question, though I may say it has many advocates in favour of its cancerous nature; but for the present I will leave it with you for discussion, hoping to have an opportunity for further observation, more minute study, and microscopical research during next summer.

The treatment for my first year's experience with the disease was of an antiseptic and cleansing nature, but with little avail. The next year I tried caustics and irritants of all descriptions; actual cautery, arsenic, acids, nitrate of silver; also styptics, sulphate of iron and copper, tincture of iron, etc. The third year iodoform, alum, and salicylic acid, with some indications of better results, but nothing flattering. For the past two years I have had excellent results with a liniment composed of olive oil, aqua ammonia, and fluid ext. of arnica, and a powder composed of alum, salicylic acid, calomel, and sulphate of iron; and as a rule, internal treatment by purgatives and tonics. Hoping this may lead to an animated discussion, and bring out other avenues of treatment, I now close.

Mr. SERMON recorded three cases, one of which was affected on the shoulder; another which was affected on the fetlock, died, and the autopsy revealed numerous calcareous bodies all through the lungs. The third was suffering from a similar growth on the inside of face. The first and last recovered under treatment with caustics and astringents.

Dr. LYFORD referred to one case, in which on excising a tumour, he found in the centre calcareous nodules or kunkers.

After some further discussion, Mr. POMEROY communicated two cases of Parturient Apoplexy.

PATHOLOGICAL SOCIETY OF LONDON.

Nephritis in Lambs.

AT the meeting of this Society, held on April 6th, Mr. ROGER WILLIAMS exhibited specimens of Acute Nephritis in lambs. The disease began soon after birth with difficulty in walking, the new-born falling down and lying on one side, sometimes with choroid movements, without loss of consciousness, without difficulty in breathing or cough; sucking was not impaired, nor the appetite. The disease appeared to attack the lambs of ewes imported from Scotland, and especially those whose female parents were served by a ram who was far from vigorous, having to spend his strength on too many ewes. At all events, it was found that if a ram only served ten ewes the progeny were vigorous, and did not become affected with the disease. Mr. Williams had examined two lambs, one that died of the disease and another killed at three weeks old. The urine was albuminous and acid, whereas it should have been alkaline. There were no renal casts, crystals, pus, or blood. The capsules of the kidneys stripped off easily, exposing a surface studded with congested stellate veins. The cortex was swollen and soft, pale and yellowish in colour, whilst the pyramids were firm and deep-red in colour. The disease was an acute Tubal Nephritis; the tubular epithelium was much degenerated, not staining with logwood, whilst the interstitial tissue was normal. The changes in both cases were identical, though one was in a more advanced condition than the other. Nothing abnormal was detected in any of the organs, and the spinal cord was healthy. Some of the lambs were born with the disease, and soon succumbed.

Dr. PYE-SMITH said the normal reaction of lamb's urine whilst suckling was acid.

ROYAL AGRICULTURAL SOCIETY.

THE monthly meeting was held on April 7th, when Sir JOHN THOROLD (Chairman) reported that Dr. Johnson, having submitted a paper on "Abortion" for the consideration of the Veterinary Committee, they recommended its publication in the October number of the Journal; and in the meantime they wished to draw the attention of the members of the Society to the desire of Dr. Johnson to receive further information from those whose herds had been or were suffering from its attacks.

The Committee recommended that a sum of £50 be placed at the disposal of Professor Robertson to enable him and one of the younger teachers, subject to the approval of the Governors of the Royal Veterinary College, to proceed to Paris in order to instruct themselves in M. Pasteur's system of the attenuation of virus for the purpose of preventing the spread of the contagious diseases of animals of the farm.

Obituary.

DR. T. SPENCER COBBOLD died on March 20th, of Angina, in the fifty-seventh year of his age. Though chiefly known to the veterinary profession as a lecturer on Helminthology and Botany at the Royal Veterinary College since 1872, yet he had a world-wide reputation as a writer on the first-named subject, of which he had made a special study, and our colleagues are indebted to him for a little work on the Internal Parasites of the Domesticated Animals—a manual of the entozoa of the ox, sheep, dog, horse, pig, and cat. He also from time to time published papers on entozoa in animals. His more important works were his "Worms: Lectures on Practical Helminthology," and "Entozoa: an Introduction to the Study of Helminthology." The *British*

Medical journal gives the following brief sketch of his career :—Dr. Cobbold gave early signs, not only of general ability, as evidenced by the high academical honours he obtained at the conclusion of his curriculum in the University of Edinburgh, but of a special bent towards the study of natural history. He was appointed Curator of the Anatomical Museum of the University of Edinburgh, a post which he held until 1856, when he established himself in London. He quickly became known as a student of the habits and nature of parasitic beings, and his reputation was consolidated by the publication of his well-known work on Entozoa in 1864. In the same year he became a Fellow of the Royal Society, and he received from other sources numerous other gratifying recognitions of the position he had achieved. He became Vice-President of the Edinburgh University Club, honorary Vice-President of the Birmingham Natural History and Microscopical Society, honorary corresponding member of the Academy of Science at Philadelphia, a foreign corresponding member of the Royal Agricultural Academy at Turin, and Emeritus Swiney Professor of Geology in connection with the British Museum. Dr. Cobbold was also for some time Examiner in Comparative Anatomy, Zoology, and Botany for the Natural Science Scholarship in St. Mary's Hospital Medical School, Lecturer on Parasitic Disease, Botany, Zoology, and Comparative Anatomy to the Middlesex Hospital Medical School, Senior President of the Royal Medical Society of Edinburgh, Vice-President of the Physiological Society of Edinburgh, and President of the Quekett Microscopical Club.

Army Veterinary Department.

Gazette, April 6th.

Veterinary Surgeon, First Class, J. E. Elphick resigns his commission.

Veterinary Surgeon, First Class, R. F. Frost, has arrived in England on six months' sick leave, he having had an attack of sunstroke while with the Expeditionary Force at Mandalay, Burmah.

Notes and News.

HYDROPHOBIA.—A return issued recently, shows the number of cases of Rabies in dogs and Hydrophobia in man that have been reported within the metropolitan police district from January, 1885, to the end of February of the present year. In January, 1885, eight cases of Rabies were reported, and one death from Hydrophobia, both of these diseases becoming more and more frequent till in November last the number rose to fifty-eight cases of Rabies, and five deaths. On the 10th of December the order for the muzzling of dogs was put in force, and in that month there were forty-six cases of Rabies, and one death. During the whole of 1885 there were 373 cases of Rabies, and twenty-six deaths. In January last the cases of Rabies fell to twenty-seven, and there was only one death. In February there were fourteen cases and no deaths.

RINDERPEST IN RUSSIA.—According to a medical report just published, the Cattle Plague continues to ravage various parts of Russia. Within a period of five years, from 1876 to 1880, the loss is estimated at no less than 1,208,500 head of horned cattle ; but even these figures, based upon official information, are considered far below the real value.

LIGATURES.—The American periodicals publish some data concerning what is called iron-dyed surgical silk. It appears that for some years past Professor W. H. Pancoast, of Philadelphia, has been in the habit of employing *pure iron-dyed silk* for sutures, and the success that he has met with

points very clearly to its value for this purpose. The well-known strength of silk, which has enabled it to be used for violin strings in place of gut, its delicate structure, non-inflammatory character, and the fact of its being a substance of animal origin, are all strong arguments in favour of its employment in surgery. The advantage of iron dye is that it does away with the irritating lead compounds that are used to bleach white silk and to give it body, whilst the black colour of the silk so dyed renders it easy to distinguish, no matter how fine the suture employed. Mr. Pancoast's description of the operations in which he finds the black silk suture peculiarly applicable is interesting. He employs it in varicocele, in which operation his practice differs from that of Dr. Baker, of London. This is what an American contemporary says on this head:—"Baker makes an incision, separates the veins of the cord from the vas deferens, then passes a needle threaded with twisted silk behind the veins, after which they are allowed to drop back into the wound. The needle is then returned in front of the veins which are then secured in the loop of the ligature through the original opening. Professor Pancoast's operation is much simpler, inasmuch as no incision is necessary, and that the strong silk ligature crushes the veins against the metallic button. The crushing of the veins against a solid, resisting substance is unique. At the end of three days a lump of plasma usually forms, and the suture is removed." No doubt will be entertained as to the resisting power of silk which is twisted or spun; but we question whether it will prove equal in this respect to the *whale tendon ligature* of Dr. Tsighuro, of Yeddo, Japan, which has attracted some attention of late years. We have also seen specimens of *ox tendon ligature*, which appeared of excellent quality. These two products will probably fight a hard battle for favour with the *silk ligature* to which we have just referred, and Professor Lister's *catgut ligature*. Whatever may be the result, no one will deny that ligatures constitute a very important feature in modern surgery. The Australians are now preparing ligatures from the sinews of the kangaroo.

ANATOMY OF THE LION.—A lioness's brain was recently dissected and studied by Herr Familant, at the Anatomical Institute of the Berne Veterinary School. Among other results he finds (*Mittheilungen* of Berne Naturalists' Society, 1885) that in form it is in many respects intermediate between the dog's and the cat's brain; from both it is distinguished by relatively small projection of the cerebellum and narrowness of the *lobus pyriformis*. Further, the chief fissures of the brain of carnivores are to be found in that of primates, the principal differences between homologous fissures being partly in imperfect formation, or perhaps retrograde formation of certain parts, and partly in confluence of some sections of originally separate fissures. In some varieties of the fissuring of man's brain, the original relations of the carnivore's brain recur. The parieto-occipital fissure is a special formation not met with in the brain of carnivores. The secondary fissures, especially in the frontal lobes, are due to a special mode of fissuring that has appeared late, and is, therefore, subject to wide variations.

RABIES.—It is gratifying to learn that a Bill is about to be brought before Parliament, making provision for the prevention of the spread of Rabies throughout the United Kingdom. It is introduced by Mr. Macfarlane, and backed by Dr. Cameron, Dr. Farquharson, and Mr. McIver.

RETIREMENT OF PROFESSOR SAINT-CYR.—After thirty-five years' service as a teacher at the Lyons Veterinary School, Professor Saint-Cyr is compelled to retire, we regret to learn, because of ill-health. In acknowledgment of his value and the good work he has done, the Government has conferred on him the title of Honorary Professor, while the teaching staff has bestowed on him a medal on which is the effigy of Bourgelat, as a *souvenir* of their regard for him.

Correspondence.**THE FELLOWSHIP DEGREE.**

SIR,—I observe in the proceedings of the Border Counties Society, reported in this month's Journal (page 279) that Professor Williams asserts that Clause 9 of the Charter, conferring the power to establish the Fellowship degree, "was the greatest blow that was ever dealt the profession. It robbed every member of his birthright," etc. With characteristic reticence, he did not inform the meeting that he was one of those who perpetrated this robbery, he being a Foundation Fellow, and a member of Council in obtaining the Charter. I cannot find that a word was said against Clause 9 by any one, but I discover that Professor Williams continued to aid in the robbery by acting as a Fellowship Examiner for some considerable time, and I presume received fees for doing so. It may suit certain ends for bifacial people now to join what is supposed to be the majority of the profession (counting noses only), as it may turn out a profitable move. But it should be remembered that any dead dog can swim with the stream. Professor Williams has not been particularly successful in his exertions to split up the profession hitherto—the Charter for Scotland, for example; and he will be no more successful now. The law is against him, and he cannot but have lost the countenance of all the Fellows at least, by his action in this matter. When he talks about the ninth Clause robbing every member of his birthright, he talks unmitigated nonsense, and such as one would scarcely expect to find in a teacher of young men. He does not evidently understand the meaning of words. No persons had any rights in the profession until they became members of it, as any schoolboy could have told him. The Charter was obtained with the full consent of the profession, and nine years had elapsed without a word being said against it. A new Charter can only be obtained with the consent of the Fellows, by returning them all the money they have paid, at a heavy cost for the Charter itself.

Veterinary Medical Societies have much influence for good or evil. When wisely guided they may effect much good; but when under an evil influence, such as that I have referred to, they are on the way to disintegration. Some people improve and adorn everything they undertake; others soil and injure all they touch. So it is with societies and their doings. Wise men lead them upwards; foolish men drag them downwards. Anything more childish, unreasoning, and unreasonable than this spuriously-instituted agitation against the Fellowship degree, it is scarcely possible to conceive. It makes one blush to consider how little is needed to set some men at their wits' end. The agitation which is sending some people now into a state of nervous fever, might be designated "much ado about nothing," for there is really nothing—notwithstanding the ranting twaddle about birthright robberies, and the post-prandial "falutin" indulged in by those who have done nothing to benefit the profession in any way, or have done it much injury at times.

ANTI-HUMBUG.

DEAR SIR,—Will you kindly favour me with a little space in your Journal to make a few remarks in favour of the veterinary profession and the "Fellowship" degree? It appears that a few members of the profession are anxious to take a retrograde step, and rescind Clause IX. of our Charter, which is a direct blow at the Fellowship degree and to veterinary advancement. If the authors of circulars can find nothing better to offer as an inducement to obtain votes at the coming election, than the rescinding of Clause IX., and the pulling of the profession to pieces, the sooner they are "boycotted" (as they say in Ireland), the better. One of the circulars has rather a political flavour, and I will just add a little more (having read Viscount Wolseley's speech), and call on the

members and Fellows of the veterinary profession to rise to a man and say "Hands off," to any individual who attempts to pull their Charter to pieces.

What is the reason of all this? The answer is not far to seek. Our gallant "members" are afraid of "showing up" their theoretical ignorance to the examiners for the Fellowship degree, and they are too careless to "read up." There are dozens of them longing for the "Fellowship degree," and would willingly pay the money, were it not for the examination, which is really easy and reasonable.

Therefore, I would again call on the "members" of the profession to come forward like men, and show their love for their profession by presenting themselves for examination, and endeavour to raise their position by taking their stand with the little group of "Fellows" at the top of the tree. Let us shake off our tight-fitting trousers and horse-shoe pins, and endeavour to improve the degraded name of "Vet.," which is a danger signal to all of a decent social standing.

Let those who wish to remain in the mud, do so; but don't let us all return to wallow in the mire. Don't let us insult Parliament by asking to have Clause IX. rescinded. Don't let the public see that we are "nobodies" and wish to remain "nobodies."

"PROGRESS."

SIR,—If the gentlemen who are taking such active awkward steps for the repeal of the Ninth Clause of the 1876 Charter, are simply seeking a means by which a "*Member*" shall obtain the power to sit at the Council table, or on the board of Examiners, the difficulty, to my mind, is easy of solution. Necessarily now, there must be some irritating but irremediable delay. Who is to blame for that? Let the next Charter contain a clause granting the privilege and the power to the then existing Council to confer—upon payment of a proper fee—the degree of "Fellowship" to a "*Member*" elected to the Council by the general voice of the profession, or to a "*Member*" appointed by the Council to be an examiner. A somewhat similar course is taken, I understand, when a prelate of the Church of England is nominated by the Crown. If he be not already a Doctor of Divinity, the degree is conferred upon him without examination by the university at which he was educated.

T. BRIGGS.

AN OBJECTIONABLE FELLOW.

SIR,—A correspondent in the March JOURNAL, signing himself "M.R.C.V.S.," alludes to a statement made at a veterinary society's dinner by a "leading gentleman" in the profession—a Fellow—to the effect that he was an Examiner for the degree, drew fees for examining and pay for travelling expenses, and resigned because the examination was a sham. I have made inquiry, and am satisfied that the statement of this *mis*-leading fellow is untrue, so far as the examination is concerned—that it is, in fact, a gross and malicious libel on the examiners, the examined, and the Royal College itself, only to be excused on the plea that the speaker had been indulging more freely in strong potations than usual. "'Tis an evil bird that fouls its own nest," and we have a few birds of this kind among us, unluckily. But they dare not make such assertions as the above when any one is present who knows the facts, and can contradict such cowardly and untruthful slanders. The Fellows should ascertain who this individual is, and have him expelled from their ranks. He is not fit to associate among those with whom your correspondent—by a mistake, I presume—classifies him.

F.R.C.V.S.

THE LANCASHIRE VETERINARY MEDICAL ASSOCIATION AND THE NINTH CLAUSE.

SIR,—At a meeting of the above association held on the 10th of March, a motion was proposed by Mr. Alexander Lawson and seconded by Mr. J. B.

Wolstenholme, to the effect that the association shall not act in concert with the Midland Association, unless their nominee will oppose the ninth Clause. This is simply a reflection on the action of the Council, and to Dr. Fleming, a man who has spent his whole life in the service of his profession, has sacrificed his time, talents, money, strength, health, and almost life itself to advance the best interests of the profession. Dr. Fleming, Sir Frederick Fitzwygram, Messrs. Taylor, Whittle, Woods, Harpley, Cox, myself, and the whole Council (your representatives), must be treated as if there can be no confidence placed in them, no word of encouragement given them for the time, the labour, and the expense they have been put to, but they must be subjected to this insult, this outrage for having used their experience and their best judgment for the good of our noble profession. We have had no other earthly object to serve but the advance of our profession. I have spent fifty-two years of my life in my profession ; have occupied the highest and most honourable position in it ; most of my time during the last twenty years I have given in rendering whatever assistance and encouragement I could to veterinary medical associations in England, Ireland, and Scotland ; everywhere I have upheld and extolled the Lancashire Association, which at this day occupies the high, the proud, and noble position of being the first and most powerful association in Great Britain. This association was asked at the last meeting to so act as to invite the finger of scorn to be pointed at it, to bind itself hand and foot, to humiliate and dishonour itself by one fell blow, viz., not to join any other association, or to vote for any man unless he will pledge himself to use all his effort to undo our work. This is done at the instigation or dictation of gentlemen, some of whom only passed into the profession yesterday, as it were. Such men have no *locus standi*, have not the slightest pretext for complaint, not even the frivolous and paltry excuse of saying that they had been robbed of certain privileges. They are men who do not know the best interests or politics of their profession ; who have done little or nothing for it. At their dictation the association was asked to repudiate or ignore the life-long services of their best friends, to censure their action. A more ungracious act cannot be conceived.

The ninth Clause was enacted in 1876 by the Council, which Council is to all intents and purposes a representative body, having been elected by the whole profession in England, Ireland, and Scotland ; it stipulates that at the end of ten years none but Fellows will be eligible to become members of Council or examiners. This fact was made known to every member of the profession at the time, and very little or no opposition was shown to it ; everything was done above board, and in a perfectly legitimate manner ; any privileges possessed were then voluntarily surrendered. The acquiring this degree of Fellowship entails a certain amount of extra study, self-improvement, gaining an additional amount of knowledge, both scientific, useful, and practical, an inducement to study and improvement which never existed in our profession before. This we considered laudable, and tending to raise the status of our profession. These are a few solid, useful, and real advantages the aspirant for the Fellowship degree would acquire ; it would make the possessor a better surgeon, a more worthy man, and therefore it must follow he must be deserving a higher esteem and respect, and it is for this purpose that we earnestly invite every aspiring member to possess himself of this higher degree. We freely acknowledge that there are many members worthy and deserving it, but over and above this, it confers upon the holder of this degree through the ninth Clause a high and important privilege, a privilege guaranteed by law, viz., he becomes entitled through it, and is thereby eligible to be elected a member of Council, and also a member of the Court of Examiners.

I was one of those who assisted at the formation of this association, the

Liverpool Association, the Yorkshire Association, and the Midland Association. More than twenty years ago I had the honour of occupying the highest position in each of these associations. I remember a certain period in the existence of this society, when a certain member from a distance caused much annoyance and heart-burning, bringing about a discordant state of feeling, and almost a disruption. He had the happy knack of stirring up strife, and making our meetings a bear-garden. It was during the presidency of my friend, Mr. Alexander Lawson, who, to his credit be it said, conducted the meetings during these stormy and troublesome times with an amount of patience, skill, and tact, which reflected the highest credit upon him ; he has often said that the only meeting during his year of office that was free from uproar was the evening I read a paper before the association.

It is now with a feeling of delicacy and reluctance I revert to the fact that I see other members, some from a distance, doing their utmost to fasten a stigma or censure on myself, Messrs. Taylor, Whittle, Wood, Dr. Fleming, and every member of Council, as if wishful to stir up strife and squabbling, renewing the bear-garden scenes in our association, likely to bring about division and disruption. One of our leading members at once resigned his membership of the Liverpool Election Committee ; I look upon it as nothing less than an indirect insult to myself and each of the gentlemen named. The minds of some are so jaundiced and prejudiced, that they would support any kind of a man if only he would oblige them and oppose the ninth Clause. On the 29th of March, at an election committee meeting of the Lancashire Association, three or four of the oldest and ablest members refused to be placed upon the committee, and at the special meeting held on the 5th inst., the president resigned his presidentship, and also his membership of the election committee. At the same meeting I resigned my membership, and two or three of the oldest and ablest men in the association expressed their strong inclination to leave it in disgust.

I have felt amazed at the furious state some of these men get into about this ninth Clause, all in consequence of the fallacious view they have taken of it, and the fifteen guineas which loom in the horizon. I conscientiously believe if they could only be got to look at it and examine it fairly and dispassionately, it would be found that there is no injustice in it ; it would be seen that there is neither right nor reason in members feeling so acutely sensitive about this ninth Clause. See the incongruous and muddled state matters are got into by the action of these gentlemen at our last and former meetings, several of the more active members absenting themselves from the last meeting for some reason best known to themselves. The Liverpool, Yorkshire, and Midland, without the slightest reservation or stipulation, have passed a motion each to support the other, and endeavour by their conjoint action to carry their candidate without any conditions whatever being imposed on him ; but the Lancashire Association must stultify itself ; it must be bound by conditions at variance with Liverpool, Yorkshire, and Midland, viz., that if the candidate of the Midland will not pledge himself to be hostile to the ninth Clause, we must not co-operate with the Midland ; therefore the Lancashire is bound to vote at variance with the Liverpool, Yorkshire, and Midland who have no such stipulation. See what a ludicrous and suicidal course these gentlemen are plunging us into.

The Lancashire Association, holding, as it does, the proud position of being the oldest and most influential Society in Great Britain, is the only association which has thought proper to adopt this narrow view of this great question. To carry out their perverse views would be, I am seriously convinced, nothing less than a retrograde movement ; it would be progressing downwards. Look at our Scotch brethren ; see how they can join hand in hand. See the North of England and the Scottish Metropolitan joining in one

circular to carry a Fellow and a non-Fellow. They would be ashamed to show such a little mind, so illiberal a disposition, as we have displayed. They are acting as wise men in a brotherly fashion, to ensure a common success. What a contrast to the action of some of the members of the Lancashire Association, whose petty jealousies, petty envy, conceit, and uncharitableness, it would seem, dominate their better judgment and every generous sentiment.

What would be said if such action were taken by a railway or any other great company? The directors are appointed annually at the annual meeting, the same as our members of Council are. They are selected from amongst a great mass of shareholders, because they are supposed to possess experience and ability. The conducting of the whole concern is placed absolutely in their hands. They have the power to lay lines, build warehouses and engines, etc., and, in fact, do everything necessary for the well-being of the concern. If they could not be entrusted with this discretionary power, they ought never have been elected directors. Who but a fool, I would ask, would say to these directors, "*You are only a miserable minority. What right have you to use the power that is vested in you?*" But this is precisely the thing these Heaven-sent geniuses are saying to their directors, their representatives in the Council. No railway company, no business could be carried on if such conduct were tolerated. There are a few dissatisfied, grumbling souls, who, it would seem, feel a fiendish pleasure in censuring the action of those who have proved themselves to be the very best friends the profession ever had, who have spent more time and pounds, ungrudgingly in honest efforts to raise their profession, than these grumblers will ever spend pence. It is quite true it often happens that at the railway annual meetings some one or other may get up and find fault with the action of the directors; but who, let me ask, are these fault-finders? It is nearly invariably the case that those who roar the loudest have the least interest at stake.

I find that the Fellows to a man are some of the best and most worthy men in our profession; are those who throughout their whole lives have taken the greatest and deepest interest in its onward progress; have been presidents of veterinary medical associations, writers, professors, or benefactors in one way or another. Look at the benevolent funds, the Building Fund of the new College, and the presents to it. The Fellows are the principal subscribers in every instance, notwithstanding the disparity in numbers. The hostile party are ever flouting it in our face that they number 3000 against our 150. But I say if these 3000 members do not possess enough enterprise, energy, or enthusiasm individually, or feel sufficient interest in their profession to pay fifteen guineas to become Fellows, they are destitute of sufficient interest and enthusiasm in their profession to spare or devote the requisite time and expense attendant upon being a member of Council, or being on the Court of Examiners.

Do we not find the West of Scotland, Scottish Metropolitan, North of England, the Southern Counties, the Royal Counties, the Midland, and other associations have, on their own account, or in conjunction with other associations, selected candidates for the forthcoming election, *who are Fellows?* There are only two associations whose members allow themselves to be overborne by bigotry and intolerance to bring forward candidates (as test cases) who are non-Fellows, and who, if elected, will, by the law of the land, be members of Council only until August 23rd, next ensuing, unless in the meantime they permit wiser counsels to prevail and to guide them, and they become Fellows, which is "a consummation devoutly to be wished."

T. GREAVES, F.R.C.V.S.

THE COMMISSION ON HYDROPHOBIA.

SIR,—The Council of the Royal College of Veterinary Surgeons has allowed the Commission to investigate Pasteur's method of inoculation for Rabies, to be made up without a veterinary surgeon being appointed and without raising its voice.

In no other country in the whole world would such a Commission be formed to investigate an essentially animal disease without a veterinary expert. In no other profession or trades union would its Council allow such an insult to be offered to it.

This Commission consists of a chemist, a surgeon, a therapist, and an Oxford professor of pathology.

There has been an almost unique opportunity missed for forwarding our social and professional *status*, by forcing a recognition of, at least, one of our body, and through one the whole.

We shall be held up to the contempt and the ridicule of the world as the only profession which cannot be trusted with an investigation into a special branch of its own particular business. The French will conclude from our absence from the Commission that we are still a set of cow-doctors and horse-leeches unfit for scientific or any other society. The injury done us, at home and abroad, by the remissness of the Council is simply incalculable, as a moment's thought will satisfy any one.

What has the Council been doing? Why has it neglected our interests? Why was not a deputation sent to the President of the Local Government Board, or at least a protest lodged? We have a just right to demand of those members of the Council who seek re-election, what they have done in the matter. "SACK."

[Our correspondent will see from the announcement in the body of the Journal, that the omission he complains of has been remedied.—ED. V. J.]

PREVENTION OF ANTHRAX.

SIR,—Probably most of your country readers will feel the same deep interest in Mr. Mulvey's contribution to the Journal on the subject of Anthrax as the undersigned, but would he kindly explain the *modus operandi* of his prescription?

We are all willing to believe that previous experience of the fatal nature of the malady is no reason why it should continue to defy the advanced science of a later generation; but, for the benefit of rustics, whose chemistry has become very seedy, would Mr. Mulvey just say whether the Acid carb. is intended to neutralise the Sodæ carb., or *vice versa*, or whether the Sodæ carb. is put in for the express purpose of saponifying the Ol lini, and whether the Bacillus anthracis is destroyed by the evolution of carbonic acid, or washed away in the soap product?

I have had much to do with Anthrax, but not met with a tithe of Mr. Mulvey's success, and cannot help thinking my failure must be due to such old-fashioned notions as prescribing the fewest number of incompatibles in any given prescription.

HAROLD LEENEY, M.R.C.V.S.

THE ONTARIO VETERINARY COLLEGE.

SIR,—It afforded me very much pleasure to be present at the ninth annual dinner of the students of the Ontario Veterinary College, which is a token of the good feeling existing between the professors and students of the College. At the present time the Collegemay be said to be in a very flourishing condition, which is wholly due to the ability, energy, and perseverance, and genial manner

possessed by the Principal of the College, Professor A. Smith, M.R.C.V.S. The number of students attending at the present session is 275, which is made up of students from all parts of the Dominion of Canada, and also from nearly every state in the Union. The large dining-hall of the Walker House was filled to overflowing with guests and students, each seeming to enjoy the excellent menu spread before them. Among the guests present we may notice the following distinguished persons:—On the right of the Chairman, W. P. McClure, sat Dr. Smith, Principal of the College; H. Wade, Secretary of the Agricultural and Arts Association; Dr. Barrett, Professor of Physiology in the College; Dr. Duncan, Professor of Anatomy; Dr. Thorburn, Professor of Medicine; Professor Babington, Lecturer on Chemistry; Rev. Dr. Wild, Alderman Defoe, Captain Manly, Mr. Acres, Mr. S. H. Ward, and Dr. Nattress. On the left of the Chairman sat—Lieut.-Col. Otter, United States Consul (Mr. Wagner), Mr. Balfour, M.P.P., Alderman Franklin, Dr. May, Rev. Charles Campbell, Rev. G. M. Milligan, E. P. Roden, F. P. Jeffrey, Major Lloyd, V.S., W. Cowan, V.S., and others. The Chairman commenced speechifying at ten o'clock, and spoke of the advantages of social gatherings, and that the object of this entertainment was to do honour to the College's profession, between whom and the students the greatest cordiality exists. He closed in proposing the toast of "The Queen," in a brilliant peroration, in which he spoke glowingly of England's prowess, Ireland's future, and Canada's freedom and advantages. The Vice-President, Mr. S. L. Hunter, proposed the toast, "The President of the United States," in a very pleasing manner, and the cheers from the American students showed that they think highly of President Cleveland. Mr. C. Smith proposed "The Governor-General," which was replied to by Rev. Dr. Wild, in a very genial and pleasing address. He said no Canadian educational institution, in any line, was doing better work. If the theory of the transmigration of the soul of man after death into the bodies of the lower animals were correct, they were doing a grand work. Mr. Dodds, "The Lieutenant-General," which was responded to by Rev. Mr. Milligan, in a stirring and eloquent address on the veterinary profession. Mr. Shoemaker, "The Army, Navy, and Reserve," to which Colonel Otter and Captain Manly replied in good speeches, relating many of their experiences in connection with the North-West rebellion. Mr. Anderson, "The Mayor and Corporation," responded to by Aldermen Defoe and Franklin. They spoke of the energy and industry displayed by the Principal (Professor Smith) of the College, and the value of the veterinary profession to stock-owners. Mr. Cheeseman, "The Agricultural and Arts Society," was responded to by Mr. H. Wade, Secretary. Mr. Boulter, "The Veterinary College," the toast of the evening, was responded to by Professor Smith, who on rising was greeted with prolonged and vociferous cheering. After thanking the students, he alluded to the rise of the College, and the harmony that always existed between the professors and students. He stated that when he commenced business, twenty years ago, his object was to assist the Board of Agriculture in founding and carrying on a school of veterinary science. At the close he thanked them heartily, which was again the signal for a good round of cheers from the students. Mr. Parks (New York), "Our Professors," responded to by Professors Barrett, M.D., Duncan, M.D., V.S., Babington. Mr. J. Scott, "The Veterinary Profession," responded to by Messrs. Lloyd, V.S., and Cowan, V.S. Dr. Nattress proposed "The Students," responded to by Mr. Ingalls, student. Mr. Stewart, "Folks at Home," responded to by Mr. Rhode. Mr. Whitehead, "The Ladies." Mr. Moore, "The Press." This brought to a close, about two a.m., the finest entertainment I ever attended, all retiring after singing the National Anthem.

W. P. HUNTER.

Toronto, *February 27th*, 1886.

NEW INVENTIONS.

SIR,—Under this heading in the last issue of your valuable Journal, I see a very glowing account of what Messrs. Hewlett purport to be a "New Instrument for Catching Dogs."

On looking over my notes on Rabies, I find that an instrument possessing the special characters described by Messrs. Hewlett, was used by the police (advised, I believe, by Prof. Walley) in capturing dogs during an outbreak of Rabies in the city of Edinburgh, several years ago.

F. G. A.

AN EXPLANATION.

DEAR SIR,—Owing to my illness, I am sorry to state that the name of Mr. Geo. Elphick, M.R.C.V.S., Newcastle-on-Tyne, was not sent by me, his nominator, in due time for nomination as a candidate for election as member of Council of the Royal College of Veterinary Surgeons at the ensuing election.

W. WILLIAMS.

New Veterinary College, Edinburgh, *April 21st.*

MEETINGS OF VETERINARY SOCIETIES.

The next meeting of the Southern Counties Veterinary Medical Association will be held at Southampton, when it is expected that Dr. Fleming will deliver an address on "The Diagnosis, Prophylaxis, and Suppression of Rabies."

The quarterly meeting of the Liverpool Veterinary Medical Association will be held on May 14th, in the Medical Institute, Hope Street, Liverpool. Chair to be taken at 6 p.m.

The Western Counties Veterinary Medical Association will meet at Launceston on the third Thursday in September.

A number of communications and reports for which there was not space in the present issue, will appear in our next.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from W. P. Hunter, Toronto; F. Raymond, A.V.D., Woolwich; S. H. Slocock, Hounslow; E. E. Bennett, A.V.D., Aldershot; D. Lyford, Minneapolis, U.S.A.; J. Roalfe Cox, London; E. A. Hollingham, Tunbridge Wells; A. Broad, London; Professor Robertson, London; A. W. Hill, London; "F. G. A."; R. A. Stock, Lewes; J. S. Hurndall, Liverpool; T. Briggs, Bury; T. S. Griffith, A.V.D., Cairo; R. S. Barcham, North Walsham; W. Penhale, Devon; A. W. Hill, London.

BOOKS AND PAMPHLETS: *J. Vaughan*, Strangeway's Veterinary Anatomy; *L. Villain et V. Bascon*, Manuel de l'Inspecteur des Viandes; *P. F. Charon*, Etude sur le Cornage Chronique; *G. Paladino*, Instituzione de Fisiologia.

JOURNALS, ETC.: *Journal of National Agricultural Society of Victoria*; *Revista Popular de la Exposicion Rural Enternacional*; *Echo Vétérinaire*; *Journal of Agricultural Society of Victoria*; *American Live Stock Journal*; *Deutsche Zeitschrift für Thiermedizin und Vergleichende Pathologie*; *Wochenschrift für Thierheilkunde und Viehzucht*; *Admiralty and Horse Guards Gazette*; *Mark Lane Express*; *Live Stock Journal*; *Hufschmeid*; *Bladen tot Bevordering van Veetartsenijkunde in Nederlandsch Indie*; *Journal of Comparative Medicine and Surgery*; *Lancet*; *British Medical Journal*; *Clinica Veterinaria*; *Presse Vétérinaire*; *Archiv für Wissenschaftliche und Praktische Thierheilkunde*; *American Veterinary Review*; *Revue Vétérinaire*; *Journal of Microscopical Science*; *Edinburgh Medical Journal*; *Annales de Médecine Vétérinaire*; *Journal de Médecine Vétérinaire et de Zootechnie*.

NEWSPAPERS: *Madras Mail*; *Toronto Mail*; *Cambridge Independent Press*; *Montreal Gazette*.

THE VETERINARY JOURNAL

AND

Annals of Comparative Pathology.

JUNE, 1886.

THE DEADLY TOXIC EFFECT OF THE "RANUNCULUS FLAMMULA" ON THE HORSE.

BY R. A. STOCK, F.R.C.V.S., LEWES.

PERUSING the Journal for April, I noticed a case of "Hellebore Poisoning," by Mr. J. B. Gresswell, of Louth. From reading it I am induced to offer the following for publication, should it be deemed worthy of insertion. Many instances of poisoning by both vegetable and mineral toxic agents—amongst which may be enumerated yew, colchicum bulbs, hellebore, aconite, nux vomica, ergot of rye, corrosive sublimate, arsenic, ferri sulph., etc.—have come under my notice during twenty years' practice. I fully endorse Mr. Gresswell's remarks, and add that, for some occult reason, the persons brought into daily contact with the lower animals seem imbued with an inherent mania for "doctoring" them, perpetrating blunders and cruelties for which they are wholly irresponsible. Pages might easily be written on the shocking sufferings of animals brought under the notice of a veterinary surgeon in the course of a year in a small district, due to the above causes. What then, I ask, does the whole amount to throughout the length and breadth of the British Isles? Truly a mighty and appalling total, the outcome of *ignorance, greed, cunning, and carelessness*, against which it seems hopeless to struggle.

On the evening of March 6th, 1884, I was summoned by telegram to attend immediately some horses very ill, the property of Messrs. Medhurst and Sons, Isfield Flour Mills, situated between this town and Uckfield. On my arrival I found the horses used by the firm were three in number, viz., grey gelding, bay mare, and black cob. The day previous the grey gelding and bay mare had been sent in double harness with a van-load of flour, etc.,

round the country, returning *viâ* Uckfield; the black cob going in a contrary direction, with a lighter load; all the horses appearing to be in their usual health. When in the main street at Uckfield, the grey was observed to falter in his going, and, reeling in the shafts, he finally fell, and quickly died. The bay mare drew home the empty waggon. The owners attributed his death to some sudden disease, and did not in consequence institute a *post-mortem* examination. The bay mare and cob were taken ill the next morning, and in the evening I was sent for. My attention was first directed to the black cob, his case being considered the worst. An examination showed that he was "*in extremis*," it being highly dangerous to approach him, as, with pendulous head nearly touching the ground, he threw himself with great violence in any direction, turning complete somersaults and lying in most extraordinary positions. In about twenty minutes death put an end to his sufferings. The bay mare, an animal seven years old, about 15 hands high, and in good condition, presented the following symptoms: When standing, pawing with one foot, then the other, tossing her head up and down, eversion of the upper lip, looking round long and anxiously at her flanks, very often lying down, *which she did most carefully*; dulness, great prostration of vital powers; pulse 90, almost imperceptible; conjunctivæ redder than normal, œdematous, with yellow tinge; buccal membranes strikingly white; tongue coated; teeth firmly clenched; ears, extremities, and surface of body, deathly cold; *skin dry*; abdomen tympanitic, tender to pressure; absence of all sounds on auscultation. Her temperature, I regret to state, I was unable to obtain, having forgotten my thermometer. My prognosis was death; she succumbed a few hours after, in spite of the remedial measures adopted. The opinion I gave was that the horses had died from the effects of a vegetable narcotico-acrid poison, but what it was I could not determine. The symptoms were those of Gastro-enteritis of a sub-acute form, *i.e.*, not attended with violent and excruciating pain. On the morning of the 7th, the owners being extremely anxious and puzzled to account for this extraordinary occurrence, requested me to make a *post-mortem* examination, which I did. The lesions in both cases were identical, and were confined to the stomach and intestines, or rather the whole of the alimentary canal. The œsophagus was very much swollen throughout its entire length; stomach, externally, looked hard and very constricted. On making an incision, a small quantity of dark-coloured fluid (its only contents) escaped. It was enormously thickened, due to the exudation of a yellow serous fluid between its coats. This condition extended to the whole of the intestines, causing complete occlusion in many parts of the small ones, with the fæces dry and adherent. At their mesenteric attachments the

swelling and exudation were very marked, and noticeable between the coats of the mesentery. Patches of ecchymosis occurred here and there on the peritoneum. The inner surfaces of the stomach and intestines exhibited a condition consistent with the effects of a powerful vesicant on the mucous membrane. In many places there were present inflammation, erosions, and circumscribed swellings, as if from rupture of vesicles. It was now my object to find out what these animals had had to cause their very rapid deaths. The carter, a young man of nineteen, a very stolid specimen of humanity, assisted (?) me in my search; the corn, water, hay, chaff, straw, hay-rick, and pea-haulm rick being carefully examined, without result. A search was also made for any drugs, etc., concealed about the buildings, but nothing found. From previous experience in cases of poisoning, I began to suspect the carter, and begged of him to disclose to me what he had given. At first he was obstinately obdurate, and made the most solemn asseverations of innocence. However, on being promised pardon, he, with much more pressing, confessed he had for four or five days given each horse, rolled up in the hay, a handful of plants obtained from a marshy meadow (intersected by ditches), situated immediately behind the mills. I accompanied him to the meadow, where he pointed out the plant he used—*leaves and roots*. It proved to be the "*Ranunculus Flammula*." The leaves possessed a hot, acrid taste, and left a numbing sensation, which did not pass off for many hours when a little was put in the mouth. "Because it was 'ot in his mouth," that is why he gave it to his horses, as he thought "it would warm 'em up a bit and maken them look nice." The case recorded excited considerable feeling in this district, and I believe, led to many stringent orders being given to servants not to give nostrums to animals under their care.

RECENT PHYSIOLOGICAL INVESTIGATIONS ON THE ACTION OF SNAKE POISON ON ANIMALS, AND ON THE VALUE OF PERMANGANATE OF POTASSIUM AS AN ANTIDOTE TO ITS EFFECTS.

BY GEORGE GRESSWELL, GRADUATE OF CHRIST CHURCH, OXFORD,
AUTHOR OF "THE PLACE OF PHYSICAL SCIENCE IN EDUCATION,"
ETC.

SOME time ago, when engaged in professorial work near Cape Town, I, together with two colleagues, had occasion to investigate the action of permanganate of potassium as an antidote to the consequences of bites by the venomous snake known in South Africa as the puff-adder. Thinking that the cases might be inte-

resting to the readers of the VETERINARY JOURNAL, herewith I record some particulars. My friend, Mons. Louis Peringuey, who was then lecturer in French, has recently been engaged in important scientific investigations on the Phylloxera. This gentleman, who is also well known for his able contributions to our knowledge of the South African Coleoptera, was very anxious, with me, to give this salt a thorough trial. My friend, Mr. W. Basil Worsfold, the lecturer in Classics, also helped; and he, together with another colleague (Mr. Hillyard), who did a great deal of the work, took the greatest possible interest in watching our proceedings.

A dog, the first subject of our experiments, was bitten at about 12 minutes to 10 o'clock a.m., on a certain day, by a puff-adder four times, every time in a different place. The first three bites were with the same fang, the fourth with the other fang. The first bite was on the nose. The wound bled at once. The second bite, which was not a very successful one, was near the seat of the first. The third was on the shoulder, and the fourth, through the ear, with the other fang (the right), bled a little.

Immediately after the first bite the animal gave utterance to a distinct moan, as though aware of the sad fate to which, in the interests of science, it had been decided to consign him. Let me add here that the dog, though sufficiently strong, in our opinion, to give us a trustworthy train of symptoms, was not in such a condition as to live with very great pleasure to himself. About five minutes after the first bite, the animal's nose began to swell very noticeably. The following notes were taken by M. Peringuey, Mr. Hillyard, and myself:—

At 5 minutes to 10—The dog is getting very reckless and agitated. The nose was swollen to twice its natural size.

At 10 o'clock—The bite on the ear has had no apparent effect—*i.e.*, there is no discernible swelling. A foamy, frothy secretion issues from the nostrils. The dog still takes food.

At 5 minutes past 10—The swelling of the nose increases. The dog becomes somewhat drowsy.

At 10 minutes past 10—The swelling, which is rather hard, has extended from the upper lips as far as the eye; but any marked tumefaction has not made its appearance in the other seats of injury.

At 15 minutes past 10—The dog now refuses food; the swelling increases, especially in the sub-labial region. Breathing through the nose becomes still more difficult; the comatose condition is becoming more extreme. The breathing is very slow (9 in the minute).

At 20 minutes past 10—The swelling is increased. Respirations 9, and laboured, but vary slightly. The swelling shows ecchymoid patches, of a reddish-purple hue.

At 10.25 a.m.—The respirations number 12 per minute, and are laboured. The swelling is still more marked. One hind-leg is stiffened, and apparently partially tetanised.

At 10.29 a.m.—The animal is perfectly helpless, and lies prostrate. The ecchymoid patches are more marked, more purple, and are especially well shown near the teeth. Both hind-legs are slightly stiffened, but movable. The temperature is 99° F.

At 10.35 a.m.—The respirations number 8 per minute. The thermometer stands at 98³⁰/₅° F. The blood oozes out, some of the capillary vessels having burst, as a result of engorgement.

At 10.45 a.m.—The animal is still capable of feeling, since an incision, made to obtain a drop of blood, produces pain, which is evidenced by a scream. The tetanus has disappeared. The dog moves, there being, apparently, a temporary revival. The swelling has extended on to the cranium, and is more marked. Respirations 30 in the minute.

At 11.15 a.m.—An incision was made with some sharpness, for the purpose of procuring a drop of blood for microscopic examination. It is noteworthy that this incision, unlike the one made at 10.45 a.m., was not felt by the dog. A specimen of blood was then carefully prepared with warm water. No abnormal appearances could be detected, except that very slight black dots were seen in the red corpuscles.

At 11.40 a.m.—Respirations 16 per minute. Ecchymosis far more marked; much venous engorgement; eyelids immensely enlarged. The animal is prostrate and quite helpless, complete coma having supervened. The sub-maxillary and other glands appear to be very slightly enlarged, and a little hardened. The swelling is hard and much increased, extending down to the neck.

At 12.20 p.m.—Respirations tranquil, and in number 18 per minute, and in character are equal one to another. Each expiration is followed by a prolonged inspiration, as in sleep. The dog looks as if under the influence of morphia. From time to time, at long intervals, the animal seems a little bit uneasy, and in consequence changes his position, so as to be more comfortably disposed, and then resumes the attitude and appearance of deep sleep.

At 2.15 p.m.—The heart has ceased to beat. The animal is dead.

The *post-mortem* examination was commenced about 3.45 p.m. When the regions in the neighbourhood of the bites were opened out with the scalpels, the most extensive extravasations of bloody serum were seen. All the tissues of the head and neck were immensely engorged with blood. The heart and other organs seemed to be perfectly normal. The right and left ventricles were entirely devoid of blood.

Microscopical examination revealed around the circumferential borders of the red cells several small dark granules. In addition to these peculiarities, there were exhibited a number of very minute rods protruding from the walls of the red-blood cell. These protrusions resembled slightly the appearance presented by the spikes on a horse-chestnut.

In this case no preventive measures were taken, but in the second case the efficacy of permanganate of potassium was tested. A second dog was bitten about a week afterwards by the same puff-adder. In this case the bite was also unmistakable; the bite was, in fact, made with some vehemence.

At 9.50 a.m.—The dog (Ginger) was bitten on the internal aspect of one hind-leg.

At 9.55 a.m.—He was again bitten in the nose.

At 10.15 a.m.—We injected subcutaneously, under the skin of the nose, and in other places, in all about sixty minims of very strong, freshly-made solution of permanganate of potassium.

At 10.30 a.m.—The dog became uneasy, frequently shaking his head and changing his position.

At 10.43 a.m.—No apparent sign of injury.

At 12.15.—The dog is *sleeping* gently, but apparently is not very much out of sorts.

The dog made a complete and permanent recovery. The seat of the bite was marked for several days afterwards by a slight local swelling.

Permanganate of potassium (KMnO_4) is, in my opinion, one of the most valuable therapeutic agents we possess. Whatever may be thought of the value of one striking case, such as that above-mentioned, as evidence that the salt has antidotic power in connection with snake-poisoning by the puff-adder, there is abundant evidence from many quarters of its general trustworthiness as a disinfectant. It has been employed as an antidote to the venom of other snakes, but I cannot at this moment specifically refer to the recorded observations. For my part, I feel absolutely certain that an antidote might be found, by extensive and painstaking research, to all kinds of snake-poisoning; and I can only regret that other work of more pressing importance kept my time so much occupied at the Cape, that I could not devote the time and attention to this subject which it so pressingly required. From every point of view, information on this subject would be most valuable, especially now that the whole question of blood-diseases is being re-investigated from an entirely new aspect. Let me abstract from Dr. Bruton's valuable work the following notes:—"Permanganate of potassium very readily parts with its oxygen, and thus destroys organic matter. When mixed with *cobra poison*, it completely destroys its

deadly power. The mixture may be injected subcutaneously without any bad effects. When injected after the poison, however, it does not appear to come into such immediate contact with it in the tissues as to destroy the poison, and therefore the salt does not act as an antidote."

With this last observation the above case does not seem to accord. My opinion is that the antidotic power of the salt would be marked, provided it were injected in sufficient strength and at a sufficiently early period. Firstly, the solution must be very strong, and in sufficient quantity; secondly, it must be injected as near as possible to the seat of injury, as well as in other parts; and, thirdly, in order to be effectual, it must be injected as soon as possible after the bite. It may be mentioned that the salt is used largely as a disinfectant in many ways. In cases of Eczema it is employed to wash the nose, in Mercurial Stomatitis, and in Diphtheria. Externally, also, it is very useful in Gonorrhœa in man.

Mr. J. B. Gresswell tells me he has used it as an injection in bulls with Gonorrhœa with the best results. It has been recommended for internal use in cases of Diabetes.

CASTRATION OF CRYPTORCHID HORSES.

BY C. E. MUNN, VETERINARY SURGEON, WATERTOWN, DAKOTA TERRITORY, U.S.A.

I HAVE been much interested at different times in articles published on this subject in various works on the science of veterinary surgery. There have been several methods described and recommended. I have not as yet, however, seen the so-called Farmer Miles' method published; and, as it is most in vogue in this country with those veterinary practitioners who are successful in performing this operation, it must surely claim the attention of all veterinary surgeons who may be called upon to castrate a cryptorchid horse.

It will not be necessary to enter into any of the preliminaries attending the operation, Mr. L. Nielsen, in his excellent article on this subject, in the January and February numbers of the *VETERINARY JOURNAL*, having given full particulars as to the proper condition of the animal at the time of the operation, also most desirable age, and so on.

The operator should be very particular in securing the subject to be operated upon. The main points are, to have the animal securely bound, so that there will be as little struggling as possible, the posterior extremities well flexed, the fetlock joints in close proximity to the stifles. Farmer Miles' method of securing, as shown in Fleming's "*Operative Surgery*," Vol. I., pages 36-40,

is one of the best and safest that I have seen in practice. The subject having been thrown, and properly secured, the operation is performed as follows:—

The parts should be thoroughly cleansed with a warm antiseptic wash, all instruments having been previously disinfected with carbolised oil, or kept within reach of the operator in a basin of carbolised water. The incision should be from 10 to 13 cm. in length, commencing posteriorly, just above the anterior border of the pubis, and a little farther from the median line than is customary in castrating naturally-formed horses. The incision is to be made through the skin only. The fingers of one hand should be inserted beneath the skin, and worked a little to the outside and back, breaking down the subcutaneous tissue until Poupart's ligament is reached. This will be but a short distance. Then the index and median fingers are to be passed over the posterior border of the ligament into the abdominal cavity, care being taken not to injure the ligament or to make the opening into the cavity any larger than necessary. The vicinity of the internal inguinal ring and brim of the pubis can then be explored, and, in most cases, by a careful rotary motion of the fingers, either the gubernaculum testis, the spermatic cord, or the testicle itself can be secured, and the testicle brought to the external opening. If the testicle or either of the guides to it are out of reach of the fingers, the whole hand will have to be inserted. It is very evident, therefore, that the operator with a narrow thin hand has considerable advantage over one whose hand is large and thick. The testicle having been brought to the external opening, I consider that the best method of removing it is by the *écraseur*, but the instrument must be a good one, that will operate without hemorrhage. Such *écraseurs* are not common—at least, such has been my experience.

If the operation is properly performed, and the animal well cared for afterwards, there need be but little fear of any bad results. The animal should be kept in a dry, well-ventilated stall, and given small feeds of easily-digested food, and but a small amount of water. There is generally more or less fever for four or five days; after that time, if the animal is doing well, he should be given a little exercise daily, but not until the fever has subsided. The average time for recovery is about three weeks.

Carbolised oil is freely used by some operators on their hands, acting as an antiseptic, and also facilitating and rendering less irritating the passage of the hand from the external opening to the posterior border of Poupart's ligament into the abdominal cavity.

Anæsthetics are hardly ever used in this country during the performance of this operation.

This method of castrating cryptorchid horses has proved very

successful in this country, when skilfully performed. The few deaths that I have known have occurred from Peritonitis, supposed to have been caused through carelessness of the operator in not observing proper antiseptic precautions.

ANTHRAX IN THE DOG.

BY G. F. DAVIS, M.R.C.V.S., ARMY VETERINARY DEPARTMENT, MADRAS.

As I have not seen recorded an instance of Anthrax in the dog, and believe that hitherto it has been considered that carnivora are more or less exempt from this disease, I herewith forward for perusal notes of an outbreak of Anthrax amongst my own dogs, also a case that occurred in another dog that was exposed to contagion in the same way as mine.

On the 22nd January, 1886, a battery horse was reported ill at one o'clock. It had eaten its mid-day feed, and appeared well then (twelve o'clock), but when seen by the Sergeant-Farrier at a quarter-past one was sweating profusely, lying down and evidently suffering some abdominal pain, pulse almost imperceptible, and in a dying condition. Patient died at two o'clock, and as the horse died before I could get to it, I immediately had it removed, and made a *post-mortem* examination, which disclosed the cause of death—Anthrax, of a virulent type. When making the *post-mortem* examination, a bull terrier which was with me, before it could be prevented, I remember licking part of the carcass; also a bull terrier of the Sergeant-Farrier's was with him, and I have no doubt did the same, but in addition the Sergeant-Farrier's dog was suffering from a cut foot, from a piece of glass, and was very lame. I mention this, as possibly inoculation, from walking in the blood, serum, etc., from the carcass, took place.

On the 26th my dog was very ill, coughing; could not swallow well, in a high state of fever, temperature 103° under the thigh, slight running from the nose; and I noticed a peculiar swelling in the submaxillary space, as if the dog had been stung; but the submaxillary glands were swollen, tumefied, and quite hard. The throat was bathed with warm water—milk, soup diet, with bread, given, and quinine pills three a day; but the swelling increased and the distress was very great, so I scarified the swelling deeply, and then noticed the character of the deposit under the skin, the same as in throat cases of Anthrax in the horse—the yellow, gelatinous deposit about an inch and a half in thickness. The dog got worse, the swelling extended down to the chest and over the face, until it more resembled a pig with a very swollen head than a dog, and died on the 28th. I cut into the

swellings, and noticed the characteristic deposit of Anthrax as found in the horse, and occupying the same positions.

On the 27th January, when in the lines, the Farrier-Sergeant asked me to look at his bull-terrier bitch, which he said had a very bad foot. He had poulticed it and soaked it in warm water, but to no purpose, as it got worse; and now the bitch had fever, would not eat, and was very ill. I examined the foot; it was very swollen, a nasty, very large ulcer between the toes; the bitch very dull, muzzle dry, and eyes watering; temperature 104.1° . She died during the night, and I examined her on the morning of the 28th. (Both my dog and this one died on the night of the 28th.) I noticed the submaxillary space filled and the neck very swollen, the swelling extending down to the chest. I cut into the swelling, and here, again, was the characteristic deposit of Anthrax, lighter in colour than in the horse, but of the same consistence, exactly like gelatine. Here, in my opinion, were two undoubted cases of Anthrax, as both dogs were exposed at the same time and died on the same night. One dog might have been inoculated, as it had a cut in the foot, and my dog, as it was always killing bandicoots (a species of large rat), had, no doubt, cuts about his mouth, and was inoculated also. But, to further establish the liability of dogs to the disease, I must mention another case, in my kennel, of the disease. A friend left for England on leave, and handed over to me his two dogs, two bull terriers—Dick and Dodger; the dates I have forgotten when they joined my dogs, but I know that they joined before the death of Buster, the dog that died; as I remember Buster fighting Dick when he arrived, and I had some difficulty in separating them, so it must have been either the 23rd or 24th. Well, Dick was taken ill about a week after Buster's death, exhibiting exactly the same symptoms. He was treated with carbolic acid; I also cut into the swelling in his throat, and dressed it with carbolised oil and hot fomentations, in which I put drops of Acid. carb. in the water; also he had a strong dose of castor oil at outset of the disease, but to no purpose, as he died in two days, the swelling apparently suffocating him, as the deposit was thick under the lining membrane of the larynx. Dodger was taken ill a few days after with cough, and the glands enlarged, but only slight swelling of the throat; temperature 101° . He continued to feed, so I left him alone, and he is now well as ever. I should mention that Dick's temperature was 103.2° , and continued between 103° and 104° until death. The serum of No. 44 battery horse I put under the microscope, and distinctly saw the rods so well illustrated in Pasteur's book; also I sent some of the blood and serum from No. 44 horse and Dick (terrier) to Professor Cheine, Edinburgh, for examination.

TUMOURS NEAR THE POINT OF THE SHOULDER,
IN THE LEVATOR HUMERI MUSCLE.

BY C. CUNNINGHAM, M.R.C.V.S., SLATEFORD.

SETTING aside warts, melanotic deposits, callous and fatty-fibrous enlargements under the skin, a word or two on the hard, painful tumours seemingly and really embedded in this muscle. Very troublesome such cases at times are; slight details of a few or different types, as they have occurred in practice during some years, may be of some little use.

(a) In student days—a light-brown farm-horse, with an orange-shaped and sized tumour near the inner border of the muscle, very near where butchers and knackers “bleed;” of old standing; nothing done for it, the collar fitted, the horse did his work without inconvenience. We were told that the best anatomical and surgical veterinary professor of his day, on this side the Border (whose name is even yet revered by his old students), in cutting out some such tumour, had the mishap, during a struggle, to injure the carotid; the scene closed, the horse did not rise. For the truth of the story we cannot vouch; but we resolved to give such tumours and the knife, if possible, a wide berth.

(b) A Clydesdale mare, in harness, takes fright, bolts, and her gallop ends by the point of the off shaft being driven with force into a stone wall. Next morning, on the off side, under the collar, is a large, round, broad, deep-seated swelling, involving, apparently, the entire thickness of the levator humeri, very hard and very painful. Fomentation, rest, physic, time, and a mild blister dissipate the enlargement; in six weeks or so there is no trace of it. It does not return. A pleasant, but rather rare, ending.

(c) A black horse has been working in the quarries, and in the muscle of the off side a tumour, very like a large lemon, but very hard, has formed; of ten days or a fortnight's standing, distinct from the skin embedded in the muscle, circumscribed, not embracing its whole breadth or thickness. A good, firm blister, and the tumour becomes almost an abscess; is lanced. A second free incision into its remaining hard substance brings about healthy action; it disappears. A rather short collar, tightly fitting the sides of the neck, and “chambered,” prevents recurrence.

(d) A big brown farm-horse has been ploughing in hard ground with occasional stones cropping up; and under the collar, also on the off side, during the week, a large, round, hard, but slightly elastic swelling has made its appearance, extending deeply into the substance of the muscle, and very sore. A few days' fomentation, a good blister, and the tumour bursts, decreases somewhat in

size, and then remains stationary, showing even slight signs of re-enlarging. A careful examination for the cause of this state of matters detects a small opening in the centre of the tumour, through which a probe or pencil can be made to pass, and, forcing a passage, the finger goes right through the muscle itself, and finds another and a smaller abscess on its other side.

A probe-pointed bistoury enlarges the passage made by the finger; a good gutter is made between the inner and outer abscesses, free drainage given; the tumour speedily disappears, keeps away; the horse works for several years on the farm, and gives no further trouble.

(e) A dark-brown cart-horse, with a large, hard, conical tumour standing out like a big breast from the front of the shoulder, and, as if to make the analogy complete, a small opening like a nipple in its centre. This opening is enlarged, filled with the old "Quittor" mixture, corrosive sublimate and flour, and a slough got out. But the tumour is an old one, and soon recovers; it is very hard, its root broad and firm, spreading deeply into the muscular tissue; and the horse is troublesome and will stand no nonsense. The case is shown to two veterinary friends, and, as a result, taken to the Veterinary Institution and cast; and there, with every care and the best skill available, "excision" is most carefully and skilfully performed. The hemorrhage is of no great account; the tumour has a whitish-yellow, fibrous, callous appearance, and so has the muscle from which it has been cut and scooped out. The wound heals in five or six weeks, but not very satisfactorily. There seems to be too much "skin" left; there is something hard yet in the muscle which shouldn't be there, and after a few days' work up rises the tumour half as big as before. The horse is exchanged for another, and passes from observation.

(f) Some months after, from the same stable comes a white horse, and the tumour on his neck is the largest, up to that time, seen by us; very broad, hot, hard, and painful, with the slightly elastic feel most such tumours have; its best treatment is a problem. Not of very long standing; excision would be a serious matter; resolution not likely to take place. A good, firm cantharidine blister, and the horse comes back in ten days with the tumour but little changed. Another blister, and in a week it bursts; a tiny hole, well up the neck, at the upper edge of the muscle, and through it a probe passes at once and deeply into an abscess on its other side, and suspiciously in the direction of the carotid and jugular. For this reason a seton is not greatly thought of; the "fistulous-withers" treatment seems preferable. The horse's head is pulled up to a ring in the wall, a twitch well put on, the off fore-leg tied up, and inserting a good, strong, probe-pointed bistoury into

the opening, by big cuts and saw-like action the gristly mass is laid open from top to bottom. An ugly gash, eight or nine inches long, and through walls, from $\frac{1}{2}$ inch to $1\frac{1}{8}$ inch in thickness. The hemorrhage is considerable, but by no means alarming. Three or four arteries are spouting away, but they are but small ones. A touch of the firing-iron to their mouths, and a few deep cross-stitches improve the look of matters, and we watch the result. Somewhat to our surprise, and considerably to our gratification, the case becomes a simple wound. Free and profuse suppuration sets in, the gristly walls subside and coalesce. In six weeks or so the tumour has disappeared, the wound healed, and in course of time where there was a tumour there is a depression and slight atrophy; the muscle looks as if it had been cut through and united again. The horse works at hard work for two or three years, gives no further trouble, but carries the mark of the big cut and cross-stitches among his white hair to the grave with him.

(g) A brown mare, of quick temper, bounding at her work, a little subject to swellings of the shoulders, and with now two tumours, not unlike large magnum-bonum potatoes, one in each levator humeri. Both are blistered, the off—the larger—decreases in size and disappears; the near and smaller enlarges, remains stationary and resists all blistering. Not relishing excision, a needle is thrust well into the centre of the tumour, partly withdrawn, a shallower hold taken, and a seton inserted. Good effect; free suppuration, chiefly from the first thrust. Another and a deeper seton did away with the remains of the tumour. The mare had a collar specially made for her; she is working now, and has been for two or three years. Occasionally, some slight indications of the former seat of the tumours show, from the mare's quick way of working, but nothing of consequence. She has not been touched since.

(h) A farm-horse, with two fair-sized tumours on the near side—one above, the other a few inches below, the point of the shoulder; both in the levator humeri; of six months' standing. The tumours are blistered, and they get less, and the upper one bursts; and we enlarged the opening, but not thoroughly, and told the owner that the enlargements would require to be setoned and perhaps cut out. No great partiality for the operation on either side, seeing about six inches of the muscle is involved, and the horse is taken to the home farm "to be taken care of"; sold, and remains "much the same."

(i and j) Severe cases.

(i) (January–March, 1884.)—A darkish-grey entire horse, twelve years or so, good shape, strongly-built, compact. Been operated on before, we are told, and now a big tumour, like a

sensational "Show" turnip, on the off side of the neck and shoulder. On the skin, where the collar lies, and up among the hairs of the mane, numerous other little swellings. Legs, below hocks and knees, round and coarse, and at the back of each hind pastern, under the skin, a couple of tumours like small apples. Despite his well-made frame, the horse's constitution and the state of his system is evidently such that, on very little provocation, and almost with no provocation at all, tumours largely composed of condensed cellular tissue and a low form of fibro-cartilage are very apt to grow and form, and, notably on the neck and legs, have formed and grown. In the current favoured, jaw-exercising language of the day, may we say the horse has a subcutaneous, fibromatous, enchondromatous diathesis?

Glancing at the tumours, big and small, we shied out of the case, wished to have nothing to do with it; but in a few months the horse was brought to be killed or cured, useless for work.

The tumour consists of two parts. A central, globular portion, about six inches in diameter, excessively hard, with a smooth, polished feel, firmly embedded in the muscle, covered and surrounded externally by a softer, fatty-fibrous feeling mass, about two inches in thickness, which extends across the median line in front of the neck, and spreads out and beyond the point of the shoulder. On the surface of the skin are about half a dozen openings of small sinuses leading into little abscesses in both hard and soft portions.

We did not see our way to cast and perform a heroic operation, but we tried to destroy the tumour by any available means. A seton through its substance causes, apparently, no pain save the snipping of the skin, but has little effect. A dead mass saturated with arsenic or corrosive sublimate is not pleasant to handle; an old friend, sulphur, into a stiff paste, with sulphuric acid, is preferred. Smearing the seton with this, in a few days a good-sized hole drilled through the tumour; plugging the lower opening and filling the space with the paste, in a few more a slough six by three inches, and eating well into the mass. Another application and a paring-away of the destroyed substance makes the tumour less, but the process is slow. The knife is tried as the horse stands, but he won't have it, and a good deal of blood comes. A hot, sharp firing-iron, and, to our surprise, the horse does not stir; so long as we keep off the skin, we may fire as deeply and as long as we please; and by acid, knife, and firing-iron, in the course of a week or two the big mass is brought about level with the skin, and at parts well into the muscle. But it begins to grow again.

A friend gives very material assistance, and supplies the right principle, when he says the excision is not deep, not thorough

enough. Deep in the muscle there is a very hard, but not very big, saucer-shaped mass left, the evident cause of all the mischief. At next dressing a firing-iron is sent through its centre, dividing it. A piece of string, with a needle through each half, and in turn pulling at each with an iron which has become flat on one side and convex on the other, we went round the circumference and deep into the muscle, and scooped out all the remaining diseased mass—not unlike a tinker soldering. Very near the large blood-vessels, with considerable trepidation. When the horse's head is pushed up, where there was a tumour there is now a biggish hole. If the throat is not cut, it is not far off it; but the finish seems satisfactory. There is no hardness now, all is soft. No hemorrhage—the surface is a nice rich-brown colour, like the strokes of a well-fired leg. A common wound the big sore became, took time to heal, but it healed; the muscle of the off side became as soft, and had as natural a feeling, as that of the near. On the horse's rough thick skin there was little mark left; one would scarcely believe such a tumour had once been there.

(j) Last, and worst (October, 1885).—A big black English mare; seven years old, with an enlargement or tumour extending from four inches above the point of the shoulder down to the brachial (weed) glands, and even a little between the legs, not less than eighteen inches long, a foot broad, standing out five inches from the level of the breast; not hot, nor very painful, but callous-looking; firmly bound to and blended with the muscles and tissues, and hard as it well can be—the most unnatural and formidable external tumour of our acquaintance.

In February and March this mare had been off work from a quittor in the off hind-foot—cured. In front of same pastern a greasy, fibrous excrescence, which a couple of firm applications of the firing-iron did away with; in the off levator humeri a small tumour, not large, rather pendulous and flabby; would not, apparently, be difficult to cut out, but its roots had a very deep-seated attachment to the muscle, both above and below the point of the shoulder. Two or three very small fistulous openings on its surface.

Pus formed in the tumour; exit was given, the opening enlarged, the little sinuses laid freely open, the greater part of the mass brought away as a slough; but, instead of getting less, the tumour got larger—the means which answered well in other cases seemed useless, if not hurtful, here. We put it to the owners, either to cast the mare, and cut out *every vestige* of the tumour—a difficult and doubtful operation—or to “chamber” the collar, and try her on the farm for a little. The latter course was taken, and the result, the first time the mare was on the road, was the “Cruelties”—the County Court—£2.

Following in the dismal chapter of incidents, the animal was no sooner put in the stable than a boy sent a sharp fork right into the side of the off fore-pastern; out came the synovia, and for weeks the mare hung a wreck in slings. The foot at last showed signs of recovery with time, and to wait the result—and “out of sight, out of mind,” for the summer months—the mare was “floated” seven miles to the farm; and now (in October) she is sound, but for this huge mass in front of the shoulder.

The mare was cast, put under and kept well under chloroform, and a so-called operation attempted, and from the first cut to the last *the* feature was hæmorrhage. No bloodless fibro-cartilaginous mass. Tough and hard, and ill to cut, the tumour certainly is; but it is traversed by blood-vessels of more than ordinary number and calibre. Now a small artery, then a biggish vein, and at times a large nutrient artery hissing two or three feet into the air; but for one and all the divided vessels we had only one effectual (and it appeared to us the only practicable) styptic—a hot, smooth firing-iron. However large the blood-vessel, a good soldering rub—the mare being insensible—stopped the bleeding, somewhat to our surprise. After-examination showed the tumour to be fibro-elastic in texture; in its centre one, at least, very large nutrient artery, and from the excised mass, branches of this vessel, of very considerable size, could easily be dissected. At parts the veins were enlarged and varicose, approaching somewhat to the size of a small jugular. The efficacy of the hot iron is accounted for by the fact that on its application the vessels would contract and recede, while the surrounding fibro-elastic material would form about the best possible medium for constringing, closing, and forming an impenetrable scar over them.

To remove the entire mass seemed impracticable. We tried to exterminate and remove only the central hard portion, leaving the outer, softer parts to another occasion. We divided the tumour through the centre, took out three successive saucer-shaped layers, weighing together five or six pounds—very light for their size—went right through the muscle, till something not unlike the capsule of a joint or a large vein showed on the other side. We “bottomed” the tumour, took out its hard centre, better it seemed to us than with the grey entire horse (*i*); but a like good result did not follow.

For weeks we tried all we could; considerable improvement took place for a time, but latterly the swelling at the lower part got harder and bigger, deep sinuses and small bursting abscesses showed through its whole extent, and, recovery being deemed hopeless, the mare was destroyed.

Post-mortem Examination.—Internal organs healthy—no appa-

rent signs of Tubercle, Lymphadenoma, or Cancer. The upper part of the levator humeri normal—a red, fleshy muscle. Two or three inches from the tumour, fibres dark-coloured, softer, more flabby—decreased in size, even in number; and between the bundles of fibres a slight deposit of dingey, yellowish, soft, fatty matter—atrophy and fatty infiltration. At the circumference of the tumour, the effects of inflammatory action,—fibres red, almost scarlet, jelly-like glaze on them, compressed together, and the bundles separated from each other by a yellowish-white consolidated exudate; while the red cut ends of the bundles, showing, on a cross section, in the light-coloured exudation, give the muscle the appearance of a Pleuro-pneumonia Epizoötica lung. At a yard's distance it is difficult to distinguish between the two. We see no reason why the term “hepatization” should not be applied here, in both its red and grey forms.

A little further in the tumour all trace of the muscular fibres has disappeared—save a pale shred here and there, there is none. The fibres have become absorbed or undergone metamorphosis—nothing remains but the exudate as a consolidated deposit, which varies in different parts of the tumour, apparently, with its stage of development. In parts, notably those from which the tumour was removed, and which have filled up again, the structure is nothing more than cellular tissue, condensed, and pressed, and woven together into a compact mass—what, we presume, may be termed fibroma. At other parts we have the usual fibrous or low fibro-cartilaginous structure—enchondroma, or an approach to it. Selecting the harder portions of this, we find at one part, in the centre, a small oval or rounded darker-coloured patch of a dingey yellow colour. A little further on we find these patches softening into pus—here is an imprisoned or encysted abscess, there small, and at places large, abscesses discharging by sinuous canals on the surface. One deep sinus, at the superior part of the tumour, leads right through into a small abscess in the anterior deep pectoral muscle. Two or three other large sinuses, at the lower part, extend in a sloping direction for four or five inches into the substance of the mass. Above the superficial pectoral muscles in the region of the brachial glands, is a firm, hard, consolidated mass, and in its centre a considerable abscess. The outer attachment of the posterior deep pectoral to the head of the humerus, as also a large portion of the outer part of the superficial muscles is involved, showing very considerable atrophy and fatty degeneration.

Of the inferior extremity of the levator humeri, save a few outer fibres of attachment, there is scarcely a trace; its lower third and the sternal part of the panniculus have gone, fused and converted into a huge, enchondromatous, suppurating mass, spread-

ing into the pectoral muscles and other structures—leaving its mark on the flexor brachii, showing even on the humeralis externus. Slowly we comprehend that for weeks we have been working at an impossibility, trying to cure what we could not cure. Slowly we see that, though a *thorough* operation might, perhaps, have succeeded at first, yet at such a late date surgical treatment was foolish and wrong. Slowly we are driven to the conclusion that we have made a fairly big and serious miscalculation, to put it mildly, and we pen these lines that others may take note and warning.

Remarks.—A few in next or some future number.

CASE OF BULLET WOUND.

BY G. R. GRIFFITH, M.R.C.V.S., A.V.D., CAIRO, EGYPT.

THE following case, I think, is of sufficient interest to record as an instance of a bullet wound and the lodgment of the bullet in the structures of the foot.

On making my monthly inspection at Alexandria, in January, 1886, a native (Syrian) horse, age eight years, belonging to the mounted orderlies, was reported to me for lameness in both fore-feet, with the statement that the lameness had been observed for some time, but that latterly it had increased. On examination, I found the horse very lame on both fore feet, with all the symptoms of chronic Laminitis, the animal going on the heels, and there being the usual irregular growth of the horn, showing disturbance of the secretory process. The ordinary treatment was had recourse to.

On my next inspection, in February, I found no improvement in the case, and considering the horse unfit for further military service, it was eventually destroyed on the 11th March, 1886, by order of the General commanding, the latter having an objection, on the score of humanity, to its disposal, as is usual, by sale. I may add that this horse had been, since 1882, with the mounted orderlies, which entailed daily work, at a trot, on the stone pavement of Alexandria; for this reason I was a little curious to ascertain the state of the navicular bones, and therefore made an autopsy of the same.

On making a vertical section on the inner side, from below upwards, inclined to the median line, of the off fore-foot, and having reached the upper third of the os pedis, a bullet was found firmly lodged between the outer surface of that bone and the horny laminæ in front. On further examination, I found a small and old cicatrix on the skin over the inner side and lower third of the os

suffraginis, no other lesion of the skin being apparent, the bullet, evidently a spent one, having struck the animal at this spot, and taken a downward and forward course underneath the skin.

In conclusion, I may add that this horse served [in the ranks of the mounted infantry during the Egyptian campaign of 1882, when, no doubt, it was wounded as described.

The hoof, with bullet, which I forward, will show that the horn-secreting process has not been interfered with as a consequence of this injury, there only being that condition of horn frequently seen in cases of Laminitis, and, moreover, that no ill results seemed to have supervened owing to the presence of the bullet within the hoof. It is remarkable that the animal should have been able to perform its duties, for a period of about three years, with a bullet lodged, as described, in the structures of the foot. To me it seems curious that the bullet, having struck the limb as above described, should not have lacerated the skin in its downward course, but have seemingly kept below that structure, and I can only surmise that the hoof must have been off the ground, and in a flexed position at the time.

AN ATTACK OF RABIES IN SHEEP.

BY GRESSWELL AND GIBBINGS, M.R.C.V.S., NOTTINGHAM.

A FEW weeks ago we were asked to see some sheep which had been bitten by a dog supposed to be affected with Rabies.

As the dog had been shot previous to our arrival, we were enabled to make a *post-mortem* examination. We found, however, no decided evidence of Rabies. The larynx and stomach were certainly slightly congested, and in the latter *nothing*, except such foreign substances as grass and earth, was found. Insufficient, however, as this evidence was, we strongly suspected Rabies, from the history of the case. The dog, a stranger in the neighbourhood, visited three farms in a semicircle, bit one ewe and lamb on the first farm, several on the second, and several more on the third. Altogether about twenty sheep were bitten. The bites were short, sharp snaps, judging from the appearance of the wounds. The dog seemed to have no sooner bitten one than he left it and attacked another, evidently having tried to bite as many as he could, and he had invariably made the face the point of attack.

Now, in the first place, the dog could not have been healthy; otherwise, instead of worrying and biting several sheep on the face alone, we presumed he would have killed a single lamb, and thus satisfied the pangs of hunger.

Again, having regard to the fact that the horn of the toes was considerably worn, we inferred that the dog had travelled some distance, presumably as a result of the rabid state.

In the third place, being a small terrier, he could not have been accustomed to worry sheep, as he would, in all probability, have been killed long ago.

On the whole, therefore, we concluded that it was a case of Rabies, and our diagnosis was proved to be correct by the fact that, on the fourteenth and fifteenth and sixteenth days after being attacked, the sheep (ewes and lambs) were in some cases affected with Rabies.

More exactly, the facts were as follows:—Two flocks had been bitten on two successive days. Fourteen days after the first flock was attacked, one ewe became restless—she ate nothing, she also constantly ran after the others and butted at them. At first sight she appeared to be under the influence of great sexual excitement, but the continued and determined manner in which she charged at every sheep in turn, and the short attacks (in point of time) she made at each one, indicated clearly some brain affection. She was isolated, whereupon all these symptoms disappeared, and only a dull, obstinate lethargy supervened. Upon putting her back amongst the others, she pursued the same tactics. These symptoms lasted two days. On the third day tetanic spasms came on, with frothing at the mouth, intermittent inversion of the eyeballs, and occasional severe rigidity of the whole muscular system.

On the fourth day she was destroyed. Another ewe became similarly affected on the fifteenth day, and two more and several lambs on the sixteenth. In all, out of the first flock, six ewes and four lambs were bitten, and five ewes and all the lambs died or were killed.

In all cases, out of the first flock, the affected sheep showed symptoms similar to those of the first; but in the majority the tetanic convulsions appeared sooner, in most cases on the second day. In the second flock, twelve ewes and lambs were bitten; of these one ewe and two lambs died on the third day, but not with any symptoms of Rabies that were noticeable. These three deaths were attributed to the extensive lacerations of the head they had sustained.

One ewe was affected with Rabies on the fifteenth day, and only a second case occurred, which was on the sixteenth day. The peculiar immunity this second flock showed from Rabies was remarkable. The two flocks were distant a mile and a half. The first was attacked late in the afternoon, and the second evidently very early on the next morning, as they were found at six a.m. in a distressed and frightened condition, the dog being only half a mile away. It may have been possible that the second flock was not inoculated with virus of sufficient quality or quantity to have been effectual in causing Rabies, or the first flock may have exhausted the supply.

AN EXPLANATION OF THE CONDITIONS WHICH BRING ABOUT A NARROW OR WIDE CHEST IN HORSES.

BY FRED SMITH, ARMY VETERINARY SURGEON.

I HAVE often felt puzzled to know what conditions existed to account for the extreme difference in appearance of a narrow and wide-chested horse. Was it due to muscular development, or was it that the thorax was really wider in the one case than in the other? With the object of determining the point, I selected four horses: two had extremely narrow chests, "both legs coming out of the same hole," as the horseman expresses it; the other two had remarkably full and wide chests. I paired them according to height, made careful measurements of the shoulders and chests, then destroyed the horses, removed and weighed all the shoulder and chest muscles carefully, and, lastly, took the transverse diameter of the thorax at its widest part, from the first to the eighth rib. I will call the two first horses A and B. A had a fine wide chest, B a particularly narrow one. Both horses were the same height.

Measurements.

	A. (The horse with the wide chest.)	B. (The horse with the narrow chest.)	Difference in favour of A.
From the outside of one shoulder to the outside of the other ...	15 $\frac{3}{4}$ inches.	14 $\frac{3}{4}$ inches.	1 inch.
Width between the inside of both shoulders	5 $\frac{3}{4}$ "	4 "	1 $\frac{3}{4}$ "
Width from the outside of one elbow-joint to the outside of the other	14 $\frac{3}{4}$ "	10 "	4 $\frac{3}{4}$ "
Width between the arms ...	7 $\frac{3}{4}$ "	5 "	2 $\frac{3}{4}$ "

Both horses were now destroyed, and the muscles covering these regions removed and weighed :—

	A.	B.	
Pectoralis trans. ...	3 lbs. 1 oz.	2 lbs. 2 oz.	15 oz.
" anticus ...	3 " 0 "	2 " 3 "	13 "
" magnus ...	5 " 8 "	3 " 7 "	2 lbs. 1 "
Antea spinatus ...	2 " 3 "	1 " 11 "	8 "
Postea " ...	2 " 11 "	2 " 10 "	1 "
Flexor brachii ...	1 " 11 "	1 " 7 "	4 "
Subscapularis ...	1 " 8 "	1 " 5 "	3 "
Teres internus ...	1 " 2 "	13 "	5 "
Triceps ext. brach. ...	9 " 0 "	7 " 10 "	1 " 6 "
Humeralis ext. ...	1 " 1 "	14 "	3 "

The whole of the muscles were now removed from the ribs, and nothing but the frame of the thorax left. Measurements were instituted across the thorax, from rib to rib, with the following results :—

Rib.		A.		B.		Difference in favour of A.
1st.	Distance apart...	3 $\frac{3}{4}$ inches.	...	3 $\frac{1}{2}$ inches	...	+ $\frac{1}{4}$ inch.
2nd.	" "	4 $\frac{1}{2}$ "	...	4 $\frac{3}{4}$ "	...	- $\frac{1}{4}$ "
3rd.	" "	6 "	...	6 $\frac{1}{8}$ "	...	- $\frac{1}{8}$ "
4th.	" "	7 $\frac{3}{4}$ "	...	7 $\frac{1}{2}$ "	...	+ $\frac{1}{4}$ "
5th.	" "	9 $\frac{1}{2}$ "	...	8 $\frac{1}{2}$ "	...	+1 "
6th.	" "	11 $\frac{3}{4}$ "	...	11 "	...	+ $\frac{3}{4}$ "
7th.	" "	14 "	...	13 "	...	+1 "
8th.	" "	16 $\frac{1}{2}$ "	...	15 $\frac{1}{2}$ "	...	+1 "

Remarks.—The results of these observations are, to my mind, most instructive. On looking at the measurements of the shoulders, elbows, etc., we observe no very great difference in the width of the part until we come opposite to the elbow-joints, and here we find a difference of 4 $\frac{3}{4}$ inches between the narrow and wide-chested horse. This great difference in width would correspond with the increase in the weight of the pectoral and triceps muscles, which, we see from the table, are much larger in the wide than narrow-chested horse. The measurements of the thorax are most important. Here we actually find that the horse with the narrow chest is slightly wider opposite to the second and third ribs than his fellow, and the latter has but a very slight advantage until we come to the seventh and eighth ribs. We are, therefore, clearly shown that the extreme difference in the width of these horses' chests *did not depend upon an actually larger thorax, but on the muscular development of the part.*

To test the correctness of this view, the experiment was repeated on two more horses, C and D, both of one height, C having a wide, D a narrow chest.

Measurements.

	C.	D.	Difference in favour of C.
From the centre of the spine of one one scapula to that of the other ...	14 inches.	12 $\frac{1}{4}$ inches.	1 $\frac{3}{4}$ inches.
From the outside of one shoulder to that of the other ...	14 $\frac{1}{2}$ "	13 $\frac{1}{4}$ "	1 $\frac{1}{4}$ "
From the hollow above the front of the elbow-joint to the same on the opposite limb ...	13 "	8 $\frac{1}{2}$ "	4 $\frac{1}{2}$ "
From the outside of one arm to the outside of the other ...	13 $\frac{1}{2}$ "	11 $\frac{1}{2}$ "	2 "
From the edge of the sternum to the inside of arm ...	4 $\frac{1}{4}$ "	2 $\frac{1}{2}$ "	1 $\frac{3}{4}$ "
Width between the upper part of arms (inside) ...	6 "	4 $\frac{1}{4}$ "	1 $\frac{3}{4}$ "
Ditto, centre of arms (inside)...	7 "	4 $\frac{3}{4}$ "	2 $\frac{1}{4}$ "
Width between the knees (inside) ...	6 "	3 $\frac{1}{2}$ "	2 $\frac{1}{2}$ "
Depth of girth ...	26 "	24 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "

Both horses were destroyed, and the following are the weights of their muscles :—

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				C.	D.	Difference in favour of C.	
Pectoralis trans.	2 lbs. 5 oz.	2 lbs. 1 oz.	+	4 oz.	
„ anticus	3 „ 5½ „	2 „ 2 „	+ 1 lb.	3½ „	
„ magnus	...	...	3 „ 8 „	3 „ 9 „	-	1 „	
Serratus „	...	...	6 „ 6 „	5 „ 5 „	+ 1 „	1 „	
Flexor brachii	...	...	1 „ 4 „	1 „ 7 „	-	3 „	
Levator humeri	...	...	2 „ 0 „	2 „ 0 „			
Lat. dorsi	...	...	3 „ 12 „	2 „ 9 „	+ 1 „	3 „	
Trapezius	...	...	1 „ 10 „	1 „ 8 „	+	2 „	
Triceps ext. brach.	...	...	7 „ 14 „	6 „ 12 „	+ 1 „	2 „	
Subscapularis and teres	...	...	2 „ 3 „	1 „ 10 „	+	9 „	
Antea spinatus	...	...	1 „ 9 „	1 „ 2 „	+	7 „	
Postea „	...	...	2 „ 6 „	3 „ 1 „	-	11 „	
Humeralis ext.	...	...	12 „	1 „ 0 „	-	4 „	
Muscles' clothing front of arm	1	„	12 „	1 „ 10 „	+	2 „	
Muscles' clothing back of arm	2	„	4 „	2 „ 1 „	+	3 „	

Measurements of Transverse Diameter of Chest.

Rib.			C.	D.	Difference in favour of C.	
1st.	Distance apart	...	3½ inches.	3 inches.	...	½ inch.
2nd.	„	...	4½ „	4¼ „	...	¼ „
3rd.	„	...	6¼ „	5¾ „	...	½ „
4th.	„	...	7½ „	7¼ „	...	¼ „
5th.	„	...	9 „	9 „	...	
6th.	„	...	11 „	11 „	...	
7th.	„	...	14 „	13½ „	...	½ „
8th.	„	...	16½ „	16 „	...	½ „
9th.	„	...	18½ „	17 „	...	1½ „
10th.	„	...	20 „	18 „	...	2 „
Depth from vertebra to						
enciform cartilage			17¼ „	16½ „	...	¾ „

Remarks.—It will be observed that in the measurements the horse with the wide chest is all over larger, the greatest difference being, as before, at the elbows; at the shoulders the difference was slight—in fact, the least recorded; it is singular, therefore, that in the one bone, the humerus, both the greatest and the least difference in measurement between these horses should be found!

In observing the weights of the muscles, we find the pectoral, serratus, latissimus, and triceps, and all muscles, considerably larger in the wide than in the narrow-chested horse. There are four muscles in horse D larger than in C, but they are of no importance. The wide-chested horse had 6¼ lbs. more muscle on his chest and shoulders than had his fellow with the narrow chest.

The difference in the transverse diameter of the thorax is very slight; for the fifth and sixth ribs there is no difference, and it is very unimportant for the others—not by any means sufficient to account for the great differences in the size of their chests.

These observations show that a wide chest does not depend upon a wide thorax, but rests entirely with the muscular development of the part; the muscles are those situated on the side of the sternum and ribs, and surrounding the humerus.

From this we are wrong in considering that a narrow-chested horse has decreased lung capacity.

Editorial.

SWINE PLAGUE.

THIS veritable scourge of the porcine tribe shows little evidence of diminishing its ravages in those countries in which it has been allowed to establish itself; and perhaps it would not be an excess of imprudence to predict that, unless more successful measures are introduced than have hitherto been devised, the swine population of these countries stands a good chance of being exterminated by it, and at no very distant day. This prediction would have for its basis the inefficacy of the measures hitherto invoked for the suppression, or, at any rate, limitation, of the disease, its extreme infectiousness, and the very heavy mortality it causes. The loss incurred by it in those countries in which it is most prevalent—as the United States—is very great, and compromises to a considerable degree the success of pig-breeding and rearing, together with the other branches of trade dependent thereon. As to the modes in which the infection is conveyed, these are numerous—indeed, the malady, for infectiousness, may be aptly compared to the Cattle Plague; though, for several reasons, it is more difficult to deal with, because of the way in which pigs are kept, their location, and the manner in which the traffic in them is conducted. The latter is, however, perhaps the most important factor in the dissemination of the germs of Swine Plague; and in all likelihood it would be found, if inquiry were carefully made, that a most prolific instrument in this distribution of the disorder is the pig-dealer's cart, which, it appears, can evade all laws and regulations with regard to cleansing and disinfection, and is employed in the conveyance of, let us hope, healthy pigs generally, diseased ones only occasionally—their condition being, of course, unknown to the dealer. Knowing the terribly infectious nature of the disease, it can be readily understood how the contaminated cart can become a most active propagator, and yet escape sanitary control. One load of diseased pigs, carried for only a short distance, will make this cart a focus of infection to healthy pigs carried in it, for months afterwards.

All evidence goes to prove that the appearance of Swine Plague—its existence, in fact, depends upon its infecting principle (the special microbes or germs), and that its “spontaneous” origin is beyond the influence or power of all the other causes which have been enumerated as tending to such development. From the researches of Pasteur and his assistants, as well as Cornevin, in France—and also of our skilled colleague, Dr. Detmers, in the United States—it seems to be demonstrated beyond doubt that this microbe is a micrococcus, joined in couples to form a figure of eight, or sometimes in groups of four; it is not a bacterium, as asserted by Klein. The latter also stated that the disease could not be transmitted to pigeons by inoculation; but the above-mentioned authorities have experienced no difficulty in doing so—indeed the experiments of Dr. Salmon, in America, with the virus of the disease, have been to a large extent carried out on these birds.

The nature of the malady is becoming better known, thanks to the investigations made on the Continent and in America ; we may, in particular, mention those contained in the excellent monograph by Cornevin on "*Le Rouget*," as the disease is termed in France.

If it is found that Swine Plague cannot be stamped-out by sanitary police measures—which, we are of opinion, it should—then, to prevent such heavy losses, it might be advisable to have recourse to protective inoculation, as devised by Pasteur, and so satisfactorily demonstrated to be efficacious by recent experiments in France and in the Grand Duchy of Baden. Pasteur attenuates the virus by cultivating the microbe, but Salmon seems to have arrived at the same result by the simpler and less tedious process of exposing it to a certain temperature for a short time.

ON PLETHORA.*

BY PROFESSOR DR. O. BOLLINGER, MUNICH PATHOLOGICAL INSTITUTE.

IN no branch of medicine does the intimate relationship of theory and practice become so apparent as in the pathology of the blood. In days, fortunately for us, gone by, when humour pathology held the sceptre of medicine, and bleeding was considered absolutely necessary for all prophylactic and therapeutic treatment, the belief in true plethora was quite a dogma.

Through the studies of Oertel, the question of circulatory disturbances has entered a new phase, and therapeutically, by means of delicate physiological demonstrations, the question has also acquired fresh foundation.

It has long been known to physiologists and pathologists, that the blood quantity in man and animals is liable to great variation, both in a normal and pathological state; but these changes are kept within certain limits, both qualitative and quantitative, by the absorption of food and drink on one hand, and on the other by muscular activity, the action of the heart, and certain excretory operations, such as urination and perspiration.

How promptly this system of compensation works in a healthy organism can easily be demonstrated by moderate phlebotomy, by which it can be proved that this artificial depletion is soon remedied, without any striking disturbance in the health of the patient.

Until recently, the existence of true plethora was accepted by most clinics and pathological anatomists, although with a certain amount of reserve ; but lately fresh experiments in Ludwig's laboratory in Leipzig have caused the discussion to be reopened, and Cohnheim has taken a very decided position, and attacked the doctrine of true polyæmia with some success.

Cohnheim demonstrated by experiment on animals, that it is impossible to produce a lasting plethora by artificial transfusion of blood. He found that by adding 50 per cent. to 80 per cent. to the blood-quantity only a passing disturbance was produced, without any increase in arterial pressure. From these investigations he was led to deny that any lasting increase in the volume of the blood can occur pathologically. He asserts that neither excessive feeding nor want of exercise will cause plethora ; they only increase fatty deposits. So-called plethoric symptoms he explained by enervation of the circulatory system. He adds, "Everything, practically speaking, fails to give scientific proof of plethora."

* Summary of an address to the Surgical Society at Munich, on 27th January, 1886. Translated by F. Raymond, F.R.C.V.S., A.V.D.

Dr. Bollinger continues: Cohnheim asserts that because a permanent plethora cannot be produced artificially, a really true polyæmia is at the utmost a passing incident, but he has completely overlooked the fact that the development of these chronic irregularities is quite gradual, generally occupying many months or years, and further, that in any case the settlement of so important and difficult a question by a few negative experimental results is inadmissible.

On the other hand, Von Recklinghausen, in his recent "General Pathological Handbook," appears as an advocate of the existence of true plethora. He acknowledges the want of precise data in support of plethora vera, but takes his standpoint on clinical and anatomical experience, which supports his views.

Plethoric individuals have a full, large, often a dilated pulse, and a pronounced tendency to congestion; their skin and visible mucous membranes are hyperæmic; they have also a considerable liability to hæmorrhage from increased blood pressure, particularly in the brain and lungs.

In this class of persons, great sanguineousness, hypertrophy and dilation of the heart, of the great vessels, and also of the capillaries of the principal glands, are noticed.

The enlargement and dilation of the heart is explained by increased demand upon its powers.

Even when the blood hypertrophy is met by cardiac hypertrophy, the circulatory system is still in a state of abnormal tension.

Febrile and inflammatory processes are replete with danger to such individuals, and may account for many rapidly occurring deaths.

Panum, by reliable experiments has demonstrated that in death from hæmorrhage exactly one-third of the entire blood volume remains in the body.

Starting from this point, Dr. Ludwig Heissler, of Eichstädt, experimented upon eighty-four animals, viz., twelve pigs, fourteen oxen, twenty sheep, and thirty-eight horses, with the following results:—

Animal.	Average percentage of Blood.	Proportion to Weight of Carcase.	Minimum.	Maximum.	Difference.
			Per cent.	Per cent.	Per cent.
Pig	4.60	1.22	2.25	8.70	6.45
Cattle..	7.71	1.13	6.03	10.00	3.97
Sheep..	8.10	1.12	6.56	10.43	3.87
Horses	9.75	1.10	5.90	13.5	7.60
Dogs ..	8.46	1.11	4.40	12.4	8.00

Heissler draws the following conclusions:—

The strikingly small quantity of blood in pigs verges upon a pathological state, and is undoubtedly connected with the considerable adipose deposit found in fattened animals. It appears that the percentage of blood is in inverse ratio to that of the fat. The pig with the least proportion of blood (2.25 per cent.) was fat throughout; on the back the fat was 14 cm. thick, the muscles of the body being marbled throughout.

In cattle more blood was found than in swine; however, the average quantity for cattle is rather too high, because seven out of the fourteen experimented on were calves, which contain a greater proportion of blood than fully-grown animals. Yoke oxen in hard condition, with little fatty deposit, contained a higher percentage of blood than stall-fed animals, *i.e.*, milch cows and fattened bullocks.

Inspection of the above table shows that in both individuals and species considerable variations occurred, and that an increased proportion of blood—a polyæmia—not unfrequently took place.

Whether and how far these variations were normal or pathological cannot be settled without further investigations, as it is evident that the boundary between physiological sanguineousness and pathological plethora is not a fixed one.

It will also be noticed that the absolute proportion rises with the weight of the body ; not so the relative, doubtless owing to the accumulation of fat. A horse in regular hard work will contain more blood than he will if used, say, for breeding, and leads an easy life. In the same way, a lean, muscular dog in constant movement will contain a great quantity of blood.

These statements are confirmed by chemical and anatomical observations on mankind. It is a settled principle that in strong, well-fed men, in hard condition, an increased quantity of blood is regularly present.

Our results entitle us to lay down the principle : Between the development of voluntary muscles, including the heart, and the blood-quantum, there is a direct and important proportion. All thoroughbred muscular animals are provided with strongly-developed hearts, large in volume and heavy in weight. Badly or moderately-fed animals have a small blood supply ; only very lean animals form an exception to the rule, evidently on account of their emaciation the proportion remains unaltered, although quantitative changes (*Hydræmia oligocythæmia*) may often be found.

Dr. Bollinger continues : With reference to the closer relations between blood and muscle, I wish to remind you that in well-developed men more than half the entire bodily weight is composed of voluntary muscle—thirty-five kilos of muscle to sixty-five of bodily weight (Birch-Hirschfeld) ; further, that one-fourth to one-third of the entire blood is normally found in the muscles, which, under certain circumstances (*i.e.*, intense Tetanus), may rise to two-thirds (J. Ranke).

High feeding, associated with muscular repose, results not in plethora, but on the contrary in anæmia. Fattening leads to anæmia, and under certain circumstances anæmia leads to fattening. This is known to feeders, who make practical use of the knowledge by first bleeding their animals when about to put them up to fatten.

According to Von Voit, the result of hæmorrhage is that less fat is oxydised, more albumen decomposed, and less CO₂ excreted.

These changes explain fatty accumulations from anæmia. Therefore, fatty infiltration and anæmia are favourable to their mutual development. An organ suffering from fatty degeneration, say the liver or the kidney, is always found to be anæmic in a high degree, at times even void of blood.

Anæmia will also explain the want of stamina in fat men and animals, who tire easily and are incapable of strong exertion, whereby in bad cases cardiac weakness plays a part (*adipositas cordis*, etc.). At all events the mass of accumulated fat acts as a drag, a dangerous passive impediment.

Age has little effect on blood volume, only young, growing animals in good condition contain proportionately more blood than fully-grown ones.

Sex has also little effect. Males—for instance, stallions, average a larger quantity of blood than females—mares, because they have a stronger muscular development.

Pregnant animals hold a special position in this respect. It has been found that pregnant cows and sheep in the first period, show no increase in blood quantum, but in the later stages a considerable increase takes place.

Castrated animals are generally deficient in blood—probably on account of increased fatty deposit. It is not improbable that the change in the animal's constitution (quietness of temperament and sluggishness) plays an important part in the matter.

There is an important point which I have not yet touched, namely—the quality of blood in increase or decrease of the same.

It is known that anæmia is often combined with hydræmia and oligocythæmia. Experiments upon strong, healthy persons of sanguine temperament (physiological plethora) have demonstrated a direct relationship between quantity and quality of the fluid.

Andral, Pavarett, and Delafond found in five strong sheep that the number of red blood corpuscles were a-third above the average. On the other hand, in anæmia the number of red corpuscles diminish considerably, sometimes to one-half and even more below the average. It is also known that an increase in the blood quantum is not necessarily a true plethora, for disturbed renal function and chronic cardiac disorder often bring about hydræmic plethora—a pseudo-hypertrophy of the blood.

Phlebotomy in normally sanguine or plethoric individuals only temporarily diminishes the blood quantum; the principal effect is chiefly a qualitative alteration—the blood becomes poorer in solids, which however are promptly replaced by proper nutriment. On the other hand, great aqueous loss (such as by perspiration) decreases the volume of, and thickens the blood.

Let us return to the original question: Does true plethora exist?

The general results of published investigations are not favourable to Cohnheim's views. Bona-fide plethora should occur more rarely in animals than in man, because animals live more naturally, and (if we except fattening animals) they are able to work off excess of food by constant exercise. Plethora may occur in the following cases: (1) It may occur temporarily in the first stages of the process of fattening; (2) in working animals when thrown out of work for a time; (3) in pampered animals, such as pet dogs, which are overfed and have little exercise. In any case, as already stated, both in man and in animals, it is very difficult to draw a sharp line between physiological sanguineousness and pathological plethora.

It appears to be quite admissible to apply observations made with animals to man; and when it is borne in mind that the causes of sanguinity exist in the latter in a far higher degree (over-eating, over-drinking, and want of exercise) than in the former, the conclusion is not far to seek, that a true plethora is at least possible in man. Indeed, there is *à priori* no reason why pathological excess of blood should not occur, as no one doubts that the converse frequently happens.

I would point out, continues Bollinger, that besides the enumerated causes for plethora, there probably exists a natural predisposition in some individuals, as is the case with obesity.

To demonstrate the occurrence of a genuine plethora in man, is an important problem for pathologists.

When they are in a position to show the following appearances in selected, well-fed subjects, then the conclusion will be admissible that the anatomical and clinical phenomena observed are due to a genuine polyæmia. The appearances referred to are as follows: A considerable dilation of the entire circulatory apparatus (heart and blood-vessels), the walls of the heart thickened, from no other cause; when streams of blood flow from the great vessels of the thorax; when the dilated and hypertrophied heart is filled to overflowing (strotzen); when clinical and other observations during life have proved the patients to have been great eaters and drinkers who took little bodily exercise; when during life the already-mentioned symptoms of plethora were patent; and lastly, when the subject has been proved to have succumbed from insufficient cardiac action, rapidly or slowly, as the case may have been, or to have died of an Apoplexy without any important lesion of the blood-vessels.

As regards the behaviour of the blood-vessels in such individuals, I would point out, says Bollinger, that they adapt themselves to the volume of the blood; thus, in chronic anæmia, we find the internal cubic space of the heart

and blood-vessels to be small, in sanguine persons it is great. Virchow's so-called Hypoplasia of the Arteries, which may be congenital or acquired, is probably only a secondary result of anæmia, wherewith qualitative changes in the blood, acting prejudicially upon the development of the walls of the vessels, may have come into play.

From these observations it may be concluded, Bollinger goes on to say, that muscular exercise and muscular development, with proportional nutrition are the most powerful regulators of the blood, not only as to quality, but also as to quantity.

This corresponds completely with the views of physiologists: "Work causes diminution of blood in the organism primarily; this diminution is great in proportion to the amount of muscular exertion. Habitual increased muscular exercise, increases, secondarily, the blood; long muscular rest decreases the blood" (J. Ranke); but pathological observations show that the latter phenomenon can probably be compensated by immoderate nutrition.

Hence we are justified in regarding muscle and blood, quantitatively, as being in a certain sense co-ordinate products of the same momenta, viz., of corporeal work and proper food. On the other hand, we may look upon an over-proportion of fat and that important factor, tissue change, as inimical to blood and muscle.

As to the relationship of sanguineousness, on one side, and anæmia, on the other, to disease, Bollinger states: Physiological plethora is the greatest protection against and during disease. This is proved by modern blood-sparing methods, as employed by surgeons and syncæcologists. It is a doctrine which has thoroughly permeated the minds of surgeons, fortunately.

It has been proved by recorded facts that pathological plethora may act directly in a pathological manner. Anæmia, on the other hand, is also a dangerous possession; it predisposes to numerous more or less dangerous diseases, notably to Tuberculosis. It is worthy of remark that the least sanguine animals, such as bovines and swine, with relatively small hearts, are most susceptible to Tuberculosis; whereas that disease hardly occurs in muscular, full-blooded animals, such as dogs and horses. However, it should also be borne in mind that milch cows and fattened animals are submitted to many damaging influences from which dogs and horses escape, being kept in a state more resembling that of nature.

ACUTE NEPHRITIS IN LAMBS.*

BY W. ROGER WILLIAMS, F.R.C.S., SURGEON TO THE WESTERN GENERAL DISPENSARY, SURGICAL REGISTRAR TO THE MIDDLESEX HOSPITAL.

IN the spring of 1884 I received a letter from my friend Dr. Unwin, of Dunchurch, near Rugby, asking me to investigate a fatal malady with which the lambs in his neighbourhood were afflicted.

He said "the farmers about here have suffered serious losses this spring, owing to a great number of deaths occurring among the newly-born lambs. I have been asked to explain the nature of the disease (people think the doctor ought to know everything) which kills so many of the young lambs, and also to suggest a remedy. I thought it possible that if the symptoms were described, and you received a body, you might make a P.M. and spot the disease."

Well, in accordance with this, I received the bodies of two lambs, one of which had died of the disease, and the other had been killed whilst suffering from it, being then nearly three weeks old.

* A paper read before the Pathological Society of London, on April 6th, 1886.

From the account of the disease that had then reached me, I was quite prepared to find Rickets. Therefore, on opening the first body, I was not surprised to see the bladder moderately distended with turbid, whitish urine, which deposited much sediment on standing. This I carefully collected, and proceeded to look for phosphates, but was surprised to find instead—*albumen*; moreover, the urine was *acid*. On microscopical examination, no casts, crystals, pus, or blood could be detected, but on removing the kidneys, these presented well-marked signs of disease. The capsules separated very readily, exposing a yellowish surface, mottled by the congested stellate veins. On section the cortex was swollen, and of a pale yellowish tint, and *exceedingly soft*; the pyramids were firm and of a deep red colour. On *microscopical examination* the disease was seen to be acute Tubal Nephritis. The uriniferous tubules of the cortex were choked and distended by the swollen and degenerated epithelium. In most of the sections the outlines of the individual cells could not be recognised, though the nuclei could often be made out. The cells were in such an advanced stage of granular degeneration that, for the most part, they had not taken the logwood stain, although the malpighian vessels and adjacent structures had done so. Indeed, the malpighian vascular tufts appeared to be unduly prominent; contrasting markedly with their epithelial lining, the cells of which were in an advanced stage of granular degeneration, and like those of the uriniferous tubules had refused the stain. The whole of the tubules of the cortex of each kidney were thus affected, but the interstitial tissues presented a perfectly normal appearance. The epithelium of the tubules of the pyramids was but little affected.

The kidneys of the second lamb presented identical changes, only less advanced. In the specimens now before the society, all these changes can be seen.

All the other organs and parts of the bodies were carefully examined, but nothing abnormal could be detected about them. I paid particular attention to the *skeleton*, the *brain*, the *spinal cord*, and the *navel*, which parts I now exhibit, but they appeared to be quite free from disease. I also show some microscopical cross sections of the spinal cord, which are normal.

In the course of further correspondence with Dr. Unwin and Mr. Goodacre, a farmer who has lost scores of lambs from this disease, I elicited the following particulars:—These lambs show want of vitality as soon as lambled, and they are wet-born, *i.e.*, with watery confinements. The disease generally appears soon after birth, but some lambs are born with it, in an almost inanimate condition; these die in a very short time. In most cases difficulty in walking is the first symptom; the animals reel and stagger about; hence the disease goes by the name of “Rickety.” Subsequently they are unable to walk at all, or even to stand; they fall and remain lying on one side. The loss of power affects all the limbs equally. They suck ravenously when the teat or bottle is brought to them; thus they may linger on for two or three weeks, but in the end always die. Mr. Goodacre writes, “There seems to be no outgrowing it; they get worse and die if they don’t finish their course in some ditch or pit.”

Dr. Unwin, who had one under observation in his paddock for nearly a fortnight, writes, “It could eat and drink when food was brought to it, as freely as a healthy lamb. It was quite conscious, and had no cough or difficulty in breathing, and its excretions appeared normal. Yet it could not stand, but would struggle and kick violently as it lay on its side. It could feel the prick of a pin in all its extremities. When placed on its feet it immediately dropped on its side, and had tremors and choreic movements, which it could not restrain for some time. In this recumbent position it could not graze.”

Sometimes the disease is said to terminate in what the shepherds call “the

evil," that is, an enlargement of the joints with pus in them, and pus all along the spine. I am inclined to believe, however, that this is in all probability a separate disease, Pyæmia, in connection with suppuration of the remains of the umbilical cord.

In no case, so far as I can ascertain, were any marked febrile symptoms present, such as might be supposed to indicate Scarlet Fever, etc.

With regard to the natural history of the disease, I have these facts to relate.

It has been known on some farms for many years—some years more than others. It is now pretty general in the neighbourhood of Dunchurch. It is a local disease, only in the sense that it affects the lambs of ewes recently imported from Scotland.

Last spring (1884) some farmers lost two or three lambs, whilst others lost dozens. Mr. Goodacre writes, "The vets. know nothing decidedly about the disease, so far as I can gather." I have certainly failed to find any description of such a disease in the chief works on veterinary medicine. It has been observed that the disease is almost entirely confined to the offspring of the imported ewes with home-bred rams. But occasionally a case occurs when the ewes of the country are served with home-bred rams. The imported ewes are of the black-faced horned Scotch and Cheviot breeds. They were introduced into the neighbourhood several years ago to cross with home-bred rams on account of the frightful losses sustained from "Rot," when the home-bred ewes were employed. It was then the custom, under the belief that one ram could serve a very large number of ewes, to allow only one ram to about fifty or sixty ewes. With the home-bred ewes this seems to have been attended with no evil results, unless predisposition to the ravages of "Rot" be so regarded. With the imported Scotch ewes about the same proportion of rams was maintained for breeding purposes.

Mr. Goodacre informs me that he has tried the effect of putting one ram to every ten ewes, with the result that many of the ewes had two lambs, and in all these cases their offspring appeared to be unusually robust. The imported ewes are brought from Scotland about three weeks before putting to ram. The offspring of both the breeds are equally liable to the disease. They come from a hilly country, where they subsist on meagre diet in a half wild state. For breeding purposes the sheep are carefully selected, and only healthy ewes are employed.

The lambs are engendered, born, and reared in the open. I paid a visit to the neighbourhood and found a gently undulating grazing country, with plenty of large trees, high hedgerows, and coarse, rank grass. The soil, cold, heavy, and of wet clay. In the lambing season the east winds exceedingly cold and nipping.

Such being the facts, I am inclined to attribute the disease to these two causes.

In the first place and chiefly, to the injurious action excited by suddenly plunging the ewes into these rigorous external conditions, without any previous gradual acclimatisation, whereby the offspring were born with constitutions out of harmony with the environment, as manifested by the appearance of the disease in birth, or shortly afterwards. Under the circumstances, I think we need not be surprised that this should be so, although the mothers exhibited no obvious departure from the standard of health. It is notorious that each kind of animal is best adapted to the particular climate of its own home. Darwin has made us familiar with the extreme susceptibility of the reproductive system, and especially of the female reproductive system, to changed and abnormal conditions in the environment. By exposing the parents to certain extraordinary conditions of life, as is well known, monstrosities may be artificially produced in the offspring,

without any obvious departure from health having ensued in the parent. The morbid influence thus generated, issues, through the parental reproductive system—as disease in the offspring. I regard the present disease as most likely developed in an analogous manner. The phenomena of healthy life are located in the protoplasm of the body, and it is to the protoplasm that we must look for the real phenomena of disease, rather than to the neuro-vascular conditions. The morbid impulse (molecular protoplasmic disturbance) thus generated in the maternal renal epithelium, appears as disease—Nephritis—in that of the offspring.

The second factor in the causation of the disease may, I think, be attributed to the serving so many ewes with but a single ram. There can be no doubt that such a course must tend to enfeeblement of the offspring. Mr. Goodacre's before-mentioned experiments in breeding confirm this view; which is also borne out by the following considerations. In the simplest form of gamogenesis—*conjugation*—two similar protoplasmic sexual elements, derived from different sources, fuse together, and the new individual is developed from the resulting newly-formed mass. Here the two sexual elements concerned are of equal morphological value, as they are also in the case of plants, a single pollen grain being the morphological equivalent of the oosphere. But in the higher animals, a single spermatazoon is not the morphological equivalent of a germ cell (ovum); its equivalent is the spermatoblast which may originate many dozen spermatazoa. The essential thing in the process of impregnation is the physical admixture of *protoplasm*, derived from different sources; the nuclear phenomena are of quite secondary importance. Reasoning by analogy, therefore, we should expect in these animals that many spermatazoa would be necessary to fertilise the ovum. And it appears to be the fact in the higher plants and animals that more than a single spermatazoon is requisite to fertilise properly the ovum—the observations of Selenka on echinoderms to the contrary notwithstanding.

Thus Newport has pointed out that when only a small number of spermatazoa are applied to the ova of Batrachians, they are only partially impregnated, and the embryo is never developed.

With regard to plants, Kölreuter and Gärtner have obtained nearly similar results. Naudin's experiments on *Mirabilis* are especially interesting. He fertilised a flower with three grains of pollen, and succeeded in producing perfect seed; but when he used only two grains and finally a single grain, in a series of seventeen experiments, he only succeeded in getting two seeds formed, and the plants produced from these never attained their proper dimensions and their flowers were remarkably small.

In conclusion, it only remains for me to thank Dr. Unwin and Mr. Goodacre for their kindness in supplying me with the facts relating to this case.

FELLOWSHIP OF THE ROYAL COLLEGE OF VETERINARY SURGEONS.

THE first examination held in Scotland for the above degree took place in Edinburgh on April 29th, 1886, when the following gentlemen were admitted Fellows of the Royal College of Veterinary Surgeons:—

- R. Rutherford, Esq., Sec. Scottish Section Board of Examiners, Edinburgh
- Archd. Robinson, Esq., Member of Board of Examiners, Greenock.
- H. Lewis, Esq., Prof. of Anatomy, etc., New Veterinary College, Edinburgh.
- J. Macqueen, Esq., Prof. of Anatomy, etc., Veterinary College, Glasgow.
- W. O. Williams, Esq., Prof. of Morbid Anatomy, New Vet. Col., Edinburgh.
- Joshua Nunn, Esq., Army Veterinary Department.
- W. Wood, Esq., jun., Wigan, Lancashire.
- James Weir, Esq., Glasgow.
- W. Anderson, Esq., jun., Glasgow.

EXAMINATIONS OF THE ROYAL COLLEGE IN SCOTLAND.

At meetings of the Scottish Section of the Board of Examiners of the Royal College of Veterinary Surgeons, held in Glasgow and Edinburgh on and between April 13th and 29th, the following gentlemen passed their Final Examination, and were admitted members of the profession :—

Glasgow Veterinary College.

Mr. H. D. Richard	...	...	...	Festiniog, Merioneth.
„ R. B. Freeman	...	...	...	Clontarf, Dublin.
„ R. M. Hamilton	...	...	...	Glasgow.
„ J. McClean	...	...	...	Killcoo, Co. Down.
† „ R. Barron	...	...	...	Sutton, Chester.
„ R. Marsh	...	...	...	Ballynahinch, Co. Down.
„ J. Dawson	...	...	...	Cootehill, Co. Cavan.
„ R. M. Malloch	...	...	...	Manchester.
„ J. Nicholson	...	...	...	Thornliebank, Renfrew.

Dick Veterinary College.

Mr. J. F. Soga	...	...	...	Cape Colony.
„ T. Barker	...	...	...	Harrogate.
„ J. Loughlin	...	...	...	Newbridge, Kildare.
„ A. R. Young	...	...	...	New Scone, Perth.
„ G. Howie	...	...	...	Turriff, Aberdeen.
„ W. L. Weighill	...	...	...	West Hartlepool.

New Veterinary College.

Mr. T. A. Porteous	...	...	...	Edinburgh.
„ J. Urmson	...	...	...	Bolton.
„ E. W. Hoare	...	...	...	Cork.
„ M. J. Cleary	...	...	...	Mullingar.
„ P. Bell	...	...	...	Hawick.
„ J. Buxton	...	...	...	Manchester.
„ W. Hall	...	...	...	Royton, Lancashire.
„ F. W. Somers	...	...	...	Leeds.
„ C. Blackhurst	...	...	...	Preston.
„ T. S. Atkinson	...	...	...	Bolton, Lancashire.
„ T. G. Peacock	...	...	...	Limerick.
„ R. H. Settle	...	...	...	Bolton.
„ C. Aggio	...	...	...	Colchester.
„ B. W. Blomfield	...	...	...	Tasbrough, Norfolk.
„ W. Kidd	...	...	...	Alexandria, N.B.
„ A. Spruce	...	...	...	Dudley.
„ T. Bowhill	...	...	...	Ayton, Berwickshire.
„ J. Malone	...	...	...	Wexford.

The following passed their *Second Examination* :—

Dick Veterinary College.

Mr. F. R. Coleman.	Mr. Edmundson.
* „ C. R. Sephton.	„ J. Cowan.
* „ J. Stewart.	„ J. Jackson.
„ E. Morgan.	„ J. Hughes.
„ J. George.	„ W. Henderson.
* „ J. W. Logan.	* „ J. Pottie.
„ G. Sinclair.	„ G. Harle.
„ W. Skinner.	„ W. Cronyn.

Mr. R. Milne.
 „ G. Parr.
 „ J. Whyte.

Mr. D. O'Regan.
 „ E. C. Winter.
 „ C. Campbell.

New Veterinary College.

Mr. L. J. Lloyd.
 „ J. Webb.
 „ G. Ratcliff.
 „ F. W. Grenfel.
 „ J. Gregory.
 * „ F. Austerberry.
 „ W. F. Shore.
 „ T. J. Wilson.
 „ A. W. S. Williams.
 * „ G. Howe.
 „ O. Thomas.
 „ J. Matthews.
 † „ J. R. Charlton.

Mr. E. Siddall.
 „ R. Shenton.
 „ W. Tait.
 „ J. Aitken.
 † „ E. Lawrence.
 „ J. L. C. Jones.
 „ G. Craik.
 „ R. Scott.
 „ E. A. Saxton.
 * „ W. C. Hazleton.
 „ O. J. Williams.
 * „ F. Smith.
 † „ J. Clarkson.

Glasgow Veterinary College.

Mr. R. O. Stafford.
 „ J. Spence.
 * „ J. McNairn.
 „ A. Welsh.
 „ H. Williams.
 „ H. Begg.
 „ T. B. Hamilton.
 „ W. Grinton.
 * „ J. Kernochan.

Mr. T. J. Campbell.
 „ A. S. Macqueen.
 „ J. McLean.
 * „ T. Miller.
 „ J. Shade.
 * „ J. McKerlie.
 „ W. D. Smith.
 „ W. McKie.

The following passed their *First Examination* :—

Dick Veterinary College.

Mr. A. Hamilton.

Glasgow Veterinary College.

Mr. H. J. Windsor.
 „ S. E. Dunn.

Mr. W. Smith.
 „ J. Watson.

New Veterinary College.

* Mr. E. Wilkinson.
 „ J. Lindsay.
 „ H. S. Jones.
 „ T. Snarry.
 „ F. W. Cosgrove.
 „ J. Appleyard.

Mr. W. A. Abbott.
 „ G. Scoon.
 * „ J. Dunnett.
 „ J. Garland.
 „ J. D. Baker.
 † „ M. Eaton.

R. RUTHERFORD, F.R.C.V.S.,
Secretary, Scottish Section, Board of Examiners.

* Marked thus passed with "Great Credit."

† Marked thus passed with "Very Great Credit."

GLASGOW VETERINARY COLLEGE.

THE winter session of this institution terminated on the 16th April, and on the 19th, 20th, and 21st the oral examinations of the Royal College of Veterinary Surgeons were conducted within the museum of the college. The candidates for diploma were also subjected to a rigid practical examination on horses, cattle, and sheep, selected and brought to the college for that purpose. The board of examiners included:—Mr. George Fleming, LL.D., F.R.C.V.S.; Mr. J. Roalfe Cox, F.R.C.V.S.; Professor Pritchard, M.R.C.V.S.; Professor Duguid, F.R.C.V.S.; and Mr. J. Vaughan, F.R.C.V.S., London; Mr. W. A. Taylor, F.R.C.V.S., Manchester; Mr. George A. Banham, F.R.C.V.S., Cambridge; Mr. Archibald Robinson, M.R.C.V.S., Greenock; and Mr. Richard Rutherford, M.R.C.V.S., Edinburgh. The following gentlemen were also present as *ex-officio* members:—Principal M'Call, Professors Cooke, Macqueen, Limont, and Renfrew, Glasgow Veterinary College.

Five students were examined for the "A" or first examination, and of this number four passed, viz.:—Mr. Samuel E. Dunn, Cheshire; Mr. John Watson, Sheetleston; Mr. H. J. Windsor, Govan; and Mr. William Smyth, Katesbridge, Ireland.

Twenty-two students presented themselves for the second professional examination, and of this number the following were successful in passing:—Mr. R. O. Stafford, Dumfries; Mr. T. J. Campbell, Stranraer; Mr. Joseph Spence, Portadown, Ireland; Mr. Andrew S. Macqueen, Glasgow; Mr. James M'Nairn, Newton-Stewart; Mr. John M'Lean, Ligoniel, Ireland; Mr. William Welsh, Glasgow; Mr. Thomas Millar, Glasgow; Mr. Hugh Williams, Holyhead, North Wales; Mr. James Shade, Glasgow; Mr. Hugh Begg, East Kilbride; Mr. John M'Kerlie, Drummore, Wigtownshire; Mr. Thomas B. Hamilton, Hamilton; Mr. W. D. Smith, Dundalk, Ireland; Mr. William Grinton, Kirkcaldy; Mr. William M'Kie, Carlisle; and Mr. John Kernohan, Ballymena, Ireland.

The following gentlemen were awarded the diploma of the Royal College of Veterinary Surgeons:—Mr. H. Owen Richard, Festiniog, North Wales; Mr. R. B. Freeman, Dublin; Mr. Robert Barron, Sutton, Cheshire; Mr. John Nicholson, Thornliebank; Mr. James Dawson, Cootehill, Ireland; Mr. Richard Marsh, Ballynahinch, Ireland; Mr. Robert M. Malloch, Braco, Perthshire; Mr. Richard M. Hamilton, Ayr; and John M'Clean, Castlewellan, Ireland.

Prize List.

Medals, granted by the Highland and Agricultural Society of Scotland, the late Professor Allen Thomson, of London; Mr. Thomas Campbell, F.R.C.V.S., Kirkcudbright; and Principal M'Call, and certificates of merit by the college, were awarded in the different branches of study as follows:—

Horse Pathology (written examination).—Gold Medal (Principal M'Call)—Mr. Barron. Silver Medal (H. and A. S. of S.)—Mr. Marsh. First-class Certificates—Messrs. Dawson, Richard, Gibson, and Malloch; Second-class Certificates—Messrs. Dalrymple, Clunas, Newlands, Cook, and Thompson.

Cattle Pathology (written examination).—Gold Medal (Principal M'Call)—Mr. Barron. Silver Medal (H. and A. S. of S.)—Mr. Dawson. First-class Certificates—Messrs. Clunas, Richard, Gibson, and Farquhar. Second-class Certificates—Messrs. Malloch, Marsh, Freeman, Cook, and Nicholson.

Practical Examination of Horses as to Age, Soundness, Operations, &c.—Gold Medal (Principal M'Call)—Mr. Robert Barron.

Practical Examination of Cattle and Sheep as to Age, Soundness, Operations, &c.—Gold Medal (Mr. Campbell)—Mr. Robert Barron.

Morbid Anatomy (written examination).—First-class Certificates—Messrs.

Barron and Dawson. Second-class Certificates—Messrs. Marsh, Caldwell, Thomson, Gibson, Farquhar, Richard, and Howard.

Anatomy (special and comparative).—Medallist—Mr. James M'Nairn. First-class Certificates—Messrs. Williams, Begg, M'Kerlie, and M'Kie. Second-class Certificates—Messrs. Stafford, Kernohan, and Millar.

Histology and Physiology (written examination).—Medallist—Mr. Andrew S. Macqueen. First-class Certificates—Messrs. M'Nairn, Begg, M'Kie, M'Kerlie, and Millar. Second-class Certificates—Messrs. Kernohan, Welsh, and Grinton.

Best professional examination in Anatomy and Physiology—Gold Medal (the late Professor Allen Thomson)—Mr. James M'Nairn.

The prize for best dissection (awarded by Mr. M'Kenzie, of Golspie) was gained by Messrs. Stafford and Macqueen.

At the close of the examinations the Secretary of the Board of Examiners intimated that Messrs. M'Nairn, Millar, M'Kerlie, and Kernohan had passed with "great credit," and Mr. Barron with "very great credit."

NEW VETERINARY COLLEGE, EDINBURGH.

PRINCIPAL WILLIAMS distributed the medals of the Highland Society, and other prizes, to the successful competitors on Wednesday, the 14th April, the following being the list:—

Pathology of the Horse.—T. Bowhill—Silver Medal; Certificates of Merit—J. Buxton, George Finlay, W. Hall, E. W. Hoare, M. J. Cleary, T. A. Porteous, and A. Watson.

Pathology of the Ox, Sheep, Pig, and Dog.—J. Buxton—Silver Medal; Certificates of Merit—T. Bowhill, G. Finlay, J. Urmston, T. A. Porteous, and M. J. Cleary.

Anatomy.—Joe Clarkson—Silver Medal; Certificates of Merit—J. R. Charlton and F. Smith.

Physiology.—Joe Clarkson—Silver Medal; Certificates of Merit—C. Hazleton and J. R. Charlton.

The Principal's £20 Prize.—T. Bowhill.

Veterinary Science of the Farm.—N. A. Moos—Silver Medal.

Bronze Medals were awarded to J. Buxton and C. Blackhurst for acting as Curators of the Museum.

Bronze Medals were awarded to C. Blackhurst, J. Urmston, G. Finlay, P. Pike, and P. Bell for best Anatomical Preparations.

Certificates of Merit were awarded to W. Hall and J. Hall for acting as Prosectors.

Certificates of Merit were awarded to J. Buxton, M. J. Cleary, A. Reah, C. Blackhurst, George Finlay, J. Urmston, S. T. Bradley, H. Newsome, P. Pike, P. Bell, W. Hall, T. Bowhill, W. J. Fletcher, A. Watson, F. Armstrong, P. Young, T. A. Porteous, E. W. Hoare, W. M. Peffers, T. Watson, E. Collins, T. Dunwoodie, for very satisfactorily performing the duties of dressers, dispensers, and visitors during the summer and winter session 1885-86.

Messrs. T. Bowhill, G. Finlay, and J. Urmston were selected to represent the College in the competition for General Sir Frederick Fitzwygram's prizes.

ONTARIO VETERINARY COLLEGE.

THE termination of the session of this school took place on March 26th, when the diplomas and prizes were awarded.

Dr. Andrew Smith, Principal of the Institution, occupied the chair, and

with him on the platform were : His Honour the Lieut.-Governor, Professor Goldwin Smith, Drs. Thorburn, Duncan, and Barrett, Messrs. Henry Parker and Henry Wade, the President and the Secretary of the Agricultural and Arts Association, Professor Babington, Major Lloyd, and E. King Dodds. Several hundred students were present.

The CHAIRMAN, in his opening remarks, stated that the past year had been the most successful yet reached in the history of the College. There had been about 300 students on the roll, of whom one hundred and thirty had come from the United States. (Applause.) The examination recently held had been of a high standard, and the awards had been strictly impartial.

Diplomas awarded.

Dr. DUNCAN then read the list of candidates to whom diplomas had been awarded, as follows :—Geo. Alexander, Strathroy, Ont.; G. H. Allen, Grand Rapids, Mich.; F. E. Anderson, Corey, Ohio; M. O. Anderson, Selkirk, Ont.; R. W. Ardary, Pittsburg, Pa.; E. M. Bergen, Chicago, Ill.; S. E. Boulter, Cheapside, Ont.; H. Bowles, Hancock, N.Y.; E. H. Bradley, Lansdowne, Ont.; G. C. Brock, Thamesville, Ont.; Wm. H. Brown, Caledonia, Ont.; B. F. Butler, Sterling, Ont.; J. F. Butterfield, Montrose, Pa.; James Cannite, Consecon, Ont.; Geo. S. Cavin, Burr, Ont.; E. W. Cheseman, Corinth, Ont.; T. Connolly, Tonawanda, N.Y.; W. C. Daniels, Democracy, Ohio; A. V. Dun, Mansfield, Ohio; Geo. W. Dickey, Forest, Ont.; H. E. Dilatush, Lebanon, Ohio; R. R. Dinwiddie, Ohio; J. S. Donald, Vittoria, Ont.; W. L. Drinkwater, Alton, Ont.; Thomas Dunphy, Crosswell, Mich.; W. Everest, Altoona, Mich.; R. E. Folkes, Hillington Lynn, Eng.; B. E. Friel, Stouffville, Ont.; D. Geddes, Bellgrave, Ont.; L. R. Grover, Bath, Pa.; R. J. Hall, Millbank, Ont.; J. W. Howard, Belleville, Ohio; Eugene B. Ingalls, Mohawk, N.Y.; S. Jones, Walsh, Ont.; F. A. Jones, Balsam, Ont.; J. F. Jones, Newark, Ohio; Wm. Joyce, Mansewood, Ont.; D. M. Keller, Williamsport, Pa.; A. H. King and J. E. King, St. Thomas, Ont.; Wm. Kirk, Gordonhill, Ont.; T. E. Macauley, Coldstream, Ont.; D. Maclean, Mitchell, Ont.; D. W. Mack, Ontario; H. S. Manhard, Brockville, Ont.; R. J. McCallister, Bailieboro', Ont.; T. C. McCahey, Wingham, Ont.; M. C. McClain, Jeromeville, Ohio; W. P. McClure, Brampton, Ont.; A. McDonald, Paisley, Ont.; Asa McQueen, Liverpool, N.Y.; E. Miller, Kings, Ill.; R. Parks, New York City; G. C. Pritchard, Grenville, Mich.; J. M. Ramsey, Mongolia, Ont.; A. J. A. Robillard, Ottawa, Ont.; Louis A. Robinson, Buffalo, N.Y.; George A. Scott, Parkhill, Ont.; John Scott, Alton, Ont.; J. J. Shoemaker, Bluffton, Ind.; John R. Litterly, Scranton, Pa.; Charles L. Smith, Brantford, Ont.; E. B. Smith, Toledo, Ohio; John Spencer, Brooklyn, Ont.; Wm. Standish, Owen Sound, Ont.; E. Harcourt Stanley, Ottawa, Ont.; R. P. Steddom, Dayton, O.; Wellington T. Stewart, Harriston, Ont.; C. H. H. Sweetapple, Oshawa, Ont.; Hugh Thompson, Hornellsville, N.Y.; J. J. Toussaint, Milwaukee, Wis.; S. J. Wallace, Orangeville, Ont.; Adam Watson, Toronto, Ont.; H. S. Wende, Erin, N.Y.; M. B. Whitehead, Youngstown, Ohio; John Williams, Lima, Ohio; E. T. Williams, Stouffville, Ont.; Thomas Wilson, Wingham, Ont.

S. Schwartz, primary in Materia Medica; R. H. McInch, D. Bell, Geo. Baxter, A. C. Wolfe, primary in anatomy.

THE HONOURS LIST.

Seniors.

Pathology.—Silver medal, G. W. Dickey; 2nd prize, A. King; 3rd prize, John Scott. Honours: M. O. Anderson, George Alexander, F. E. Anderson, G. H. Allen, G. C. Brock, E. H. Bradley, J. Carnrite, C. W. Cheseman,

R. R. Dinwiddie, W. H. Everest, L. R. Grover, J. W. Howard, W. Joyce, J. F. Jones, S. Jones, F. A. Jones, W. Kirk, D. M. Mack, W. P. McClure, Asa McQueen, T. E. Macauley, T. C. McCahey, R. Parks, G. A. Scott, C. L. Smith, E. B. Smith, R. P. Steddom, J. Spencer, J. G. Toussaint, S. J. Wallace, E. G. Williams, M. B. Whitehead.

Anatomy.—1st prize, G. W. Dickey; 2nd prize, R. R. Dinwiddie; 3rd prize, John Scott. Honours: G. Alexander, F. E. Anderson, S. E. Boulter, E. H. Bradley, G. C. Brock, B. F. Butler, J. Carnrite, W. C. Daniels, T. Dunphy, W. Everest, F. A. Jones, J. F. Jones, D. M. Keller, A. King, W. Kirk, T. E. McCahey, W. P. McClure, A. McDonald, R. H. McClure, Asa McQueen, T. E. Macauley, J. J. Shoemaker, J. Spencer, R. P. Steddom, H. Thompson, S. J. Wallace, T. Williams.

Entozoa.—1st prize, R. R. Dinwiddie. Honours: G. Alexander, F. E. Anderson, B. F. Butler, G. W. Dickey, W. Everest, W. Joyce, D. King, T. E. Macauley, John Scott.

Microscopy.—Special Class.—1st prize, F. E. Anderson. Honours: J. F. Butterfield, G. W. Dickey. General Class: 1st prize, Asa McQueen. Honours: R. R. Dinwiddie, A. King, W. P. McClure, R. P. Steddom, H. Thompson.

Physiology.—1st prize, R. R. Dinwiddie; 2nd prize, W. P. McClure; 3rd prize, S. J. Wallace. Honours: E. W. Cheseman, G. Dickey, E. H. Bradley, R. P. Steddom, J. Scott, M. D. Anderson, G. E. Anderson, J. Ramsay, T. E. Macauley, A. McQueen, T. Williams, J. W. Howard, G. S. Cavin, M. B. Whitehead, C. L. Smith, J. E. King, A. H. King.

Chemistry.—1st, R. R. Dinwiddie; 2nd, W. P. McClure. Honours: E. W. Cheseman, R. J. Hall, J. F. Jones, S. E. Boulter, M. B. Whitehead.

Materia Medica.—1st prize, F. Scott; 2nd prize, G. W. Dickey; 3rd prize, R. R. Dinwiddie. Honours: W. P. McClure, D. W. Mack, T. E. Macauley, G. C. Brock, R. P. Steddom, M. D. Anderson, B. F. Butler, A. H. King, J. J. Shoemaker, J. F. Jones, David King, W. Everest, J. E. Anderson, H. Thompson, E. S. Williams, E. B. Smith, M. B. Whitehead, C. L. Smith.

Best General Examination.—1st, gold medal, given by the Ontario Veterinary Medical Association, John Scott. Honours: F. E. Anderson, G. W. Dickey, R. R. Dinwiddie, A. King, W. Kirk, W. P. McClure, Asa McQueen, L. A. Robinson.

Juniors.

Pathology.—1st prize, L. Brady; 2nd prize, F. Booker, W. T. Weese (equal); 3rd prize, J. Moore. Honours: E. Blackwell, J. C. Booker, E. A. Bradley, C. D. Beardsley, A. Barnes, J. Curphey, H. D. Chamberlain, H. Fee, H. Fry, B. Fletcher, A. Graham, A. Hutchings, B. Henderson, J. Rutherford, H. S. Richards, J. Steen, F. E. Wilkinson, R. M. Waldron, C. E. Winner.

Anatomy.—1st, silver medal, E. Blackwell; 2nd prize, F. Booker; 3rd prize, E. A. Bradley. Honours: J. C. Black, J. C. Booker, L. R. Brady, H. D. Chamberlain, C. G. Chase, H. Fee, H. Fry, H. S. Richards, R. M. Waldron, W. F. Weese, C. E. Winner.

Physiology.—1st, L. R. Brady; 2nd, W. Weese, E. Blackwell (equal). Honours: C. E. Winner, A. Graham, F. Booker, J. Moore, J. Rutherford.

Chemistry.—1st prize, B. Fletcher. Honours: J. Moore, J. Harris.

The prizes having been presented to the winners,

His Honour the LIEUTENANT-GOVERNOR, by request of the Principal, delivered a brief address to the students. He congratulated the heads of the college upon the success it had already achieved, and said that in his opinion the Institution must be of great benefit to the province. He was glad to see that the number of students was yearly increasing, and that so large a proportion came from the United States. The youth of the United

Stated were noted for their patriotism and their attachment to their own institutions, and the fact that so many students came to the Ontario Veterinary College for instructions was a most significant testimony of the reputation the institution had gained on this continent. (Applause.) If they had not thought that the diplomas of the Ontario Veterinary College were of greater value than those of similar institutions in the United States they would not have come to Toronto.

Professor GOLDWIN SMITH made a felicitous speech. He expressed his conviction that the College was doing a good work. Horses were a source of riches and power to a nation, and where there were fine horses there were generally fine men. The object of the College was to increase the knowledge of the proper treatment of the horse in health and disease, and in carrying this out the Institution must confer a benefit on the country. He reminded the students that in these days it was acknowledged that with regard to disease prevention was better than cure, and they should therefore pay special attention to the treatment and diet of the horse with the view to keep it in health. In England the evil had been that disease had been produced in horses by over-feeding. The tendency to put horses too soon to work was the evil to be avoided in this country. He trusted to see in a few years Canada become the great breeding ground of horses for the English market.

After speeches from other gentlemen present, the proceedings terminated.

MONTREAL VETERINARY COLLEGE.

THE twentieth session of this institution was brought to a close on March 23rd, when the final examinations took place. Examinations were passed as follows :—

In Botany.—(Professor Penhallow, McGill University) Messrs. Craik, McGarth, Robertson, Becket, Smith, Murphy, Craig, Munro, Miller (John), and Roberts.

In Histology.—(Professor Wilkins, McGill University) Messrs. Craik, McGarth, Robertson, Becket, Smith, Roberts, Dawes, Reid, Torrance, Feron, Sangster.

In Physiology.—(Professor T. Westley, McGill University) Messrs. Wroughton, Feron, Rowat, Miller (Frank), Simpson, Craig.

In Chemistry.—(Professor Girdwood, McGill University) Messrs. Torrance, Rowat, Simpson, Murphy, Miller (Frank), Baker.

In Materia Medica.—(Professor Stewart, Veterinary College) Messrs. Torrance, Miller, Rowat, Craig, Simpson, Feron, Murphy, Dearden, Baker.

In Anatomy.—(Mr. Baker, V.S., Veterinary College) Messrs. Dyer, Sangster, Wroughton, and Whyte.

In General Pathology, Theory, and Practice of Medicine and Surgery.—(Principal McEachran, F.R.C.V.S., Veterinary College) Messrs. Wroughton, Whyte, Dyer, and Sangster.

The final examinations, before a Board of Examiners appointed by the Council of Agriculture, took place in the College lecture-room Tuesday morning. The Board was constituted as follows :—Messrs. William Bryden, V.S., Boston, Mass. ; Frank S. Billings, M.V., Roxbury, Mass. ; Arch. McCormic, V.S., Ormstown ; Charles C. Cowie, M.R.C.V.S., Ogdensburg, N.Y. ; J. A. Couture, V.S., Quebec ; A. W. Harris, V.S., Ottawa ; A. E. Cross, V.S., Montreal ; Charles Levesque, V.S., Berthier (*en haut*). The following gentlemen, having passed all the examinations and attended the prescribed number of sessions, were considered by the Board to be fully qualified to practise the science and art of veterinary medicine and surgery,

and were judged worthy to receive the diploma of the College :—Messrs. Wroughton, Whyte, Dyer, and Sangster.

The presentation of prizes and diplomas took place in the afternoon, Sir William Dawson, the principal of McGill University, presiding. There was a large attendance of the friends of the College and students. Dr. Leclerc, Secretary of the Council of Agriculture, read the report of the result of the various examinations and prizes. The Chairman then presented the prizes to the successful competitors :—

SENIOR CLASS.—*For the Best General Examination in all Branches.*—A Silver Medal, the gift of the Council of Agriculture, was won by Theodore A. Wroughton.

General Pathology, Theory, and Practice of Medicine and Surgery.—First prize, T. A. Wroughton ; second prize, J. D. Whyte.

Anatomy.—First prize, C. C. Dyer ; second prize, George Sangster.

SECOND YEAR.—*General Pathology, Theory, and Practice of Medicine and Surgery.*—First prize, W. J. Torrance ; second prize, A. Rowat.

Anatomy.—First prize, A. Rowat ; second prize, W. J. Torrance.

Materia Medica.—First prize, W. J. Torrance ; second prize, Frank Miller.

FIRST YEAR.—*Anatomy.*—George C. Becket.

Botany.—Galen Craik.

The Chairman then presented the diploma of the College to Messrs. T. A. Wroughton, C. C. Dyer, J. D. Whyte, and G. W. Sangster.

Sir WILLIAM DAWSON said though the number receiving diplomas was small, those who had received them might be congratulated on having gone through a most thorough course, for which they were greatly indebted to their instructors. It was a most fallacious method to judge a school by the number of its graduates. He hoped the time would come when, through Government aid, this school would cease to be a burden on its principal.

Mr. BLACKWOOD, representing the Quebec Council of Agriculture, said that during the year he had had occasion to examine into the condition of the men who had been educated at this College, and he was gratified to learn that every one whom he had been able to trace had been successful. This was a remarkable record, and an encouraging outlook to those now leaving the College, to whom, as an old man, he might be permitted to give one or two bits of advice. Certain temptations peculiarly surrounded the members of their profession. Let it be said of each of them, as he had once heard it remarked of their principal, that no money could affect his opinion of a horse ; and let them be careful about drink, which it would be hard for them to avoid. He had himself in 1836 come to the conclusion that his only safe course lay in total abstinence, which course he had never departed from.

Dr. HINGSTON, in adding his quota of advice to the young men, said it was their duty to take the position of gentlemen among society, and to uphold the dignity of their profession by their demeanour, as well as by their acquirements. He quoted some eminent examples of veterinary men who took the highest social places.

Dr. MCEACHRAN endorsed the advice that had been given them, as well as what had been said of the success of the graduates. A number of these now held teaching positions, and although from his experience he could not recommend this occupation as a money-making one, they could at all events assure themselves that those who had passed through the course prescribed by this College were qualified to teach.

The proceedings were then brought to a close.

The Montreal Veterinary Medical Association afterwards held a meeting for the purpose of conferring on the successful graduates the diploma of the Association. In presenting them, the President, Dr. Baker, warmly con-

gratulated the young men, saying he hoped they would always consider it an honour to possess these diplomas, and that the Association would always be equally proud of their holders.

Mr. Feron was then elected to fill the offices of Secretary-Treasurer and Librarian during the summer, after which the meeting adjourned.

The annual dinner took place in the evening at the St. Lawrence Hall.

Proceedings of Veterinary Medical Societies, &c.

ROYAL COLLEGE OF VETERINARY SURGEONS.

FORTY-THIRD ANNUAL GENERAL MEETING.

HELD ON MONDAY, MAY 3RD, 1886, AT THE NEW BUILDING OF THE
ROYAL COLLEGE, RED LION SQUARE, W.C.

President, J. ROALFE COX, ESQ.

Members present: Nicholson Almond, W. J. Arkcoll, George A. Banham, J. D. Barford, A. W. Barnes, T. G. Batt, William C. Bland, E. E. Bennett, J. C. Bonnett, A. Bostock, W. Geo. Baswell, Thomas Briggs, A. Broad, Arthur Broad, James Broad, W. George Burrell, T. Caldecott, T. Campbell, B. Cartledge, H. J. Cartwright, Thomas W. Cave, R. Clarke, A. C. Cope, J. Roalfe Cox, W. W. Dollar, Edward C. Dray, W. Duguid, Henry Dyer, William Alston Edgar, Dr. Evans, A.V.D., Hugh Ferguson, Major-General Sir Frederick Fitzwygram, Dr. G. Fleming, W. Franklin, J. Fraser, James A. Gosling, H. D. Gibbings, Frank W. Gibbings, J. Gibbs, Thomas Greaves, W. J. Hatton, Stanford Harrison, E. A. Herron, J. Woodroffe Hill, Henry Hunter, William Hunting, James W. Ingram, Arthur H. Jacobs, F. Jarvis, A. Adrian Jones, A.V.D., H. Kidd, James Lambert, H. Laurence, H. G. Lepper, Clement Lowe, James Mackinder, W. F. Malvey, J. McCall, James Meredale, J. J. Meyrick, A. M. Michaelis, William Mole, Thomas Moore, W. H. Moore, D. McGill, J. B. Nisbet, G. A. Oliver, Alfred Over, J. M. Parker, H. R. Perrins, J. J. Philips, A.V.D., George Pickwell, Richard Poyser, A.V.D., J. S. Price, William Pritchard, F. Raymond, J. Reilly, A.V.D., Alex. G. Richardson, A.V.D., A. Rogerson, William Roots, James Rowe, F. G. Samson, Thomas Sangster, A. H. Santy, H. Sewell, H. K. Shaw, William Shipley, Henry J. Simpson, James F. Simpson, H. M. Singleton, Benjamin Smith, Frederick Smith, A.V.D., Henry M. Stanley, Peter Taylor, W. A. Taylor, F. Walker, James P. S. Walker, Thomas Walley, D. Y. Whitfield, William Whittle, William Wilson, Joseph Woodger, Edward Woodger, William Woods, J. Woof, F. W. Wragg, and the Secretary.

The SECRETARY (Mr. HILL) announced the result of the election as follows :—Mr. Simpson, 725 ; General Fitzwygram, 679 ; Mr. Storar, 517 ; Mr. Campbell, 486 ; Mr. Perrins, 464 ; Mr. Barford, 448 ; Mr. Simcox, 439 ; Professor Brown, 331 ; Mr. Blakeway, 311. The first six were declared to be elected.

Mr. DRAY proposed, and Mr. CARTLEDGE seconded, a vote of thanks to the scrutineers, which was unanimously adopted.

The PRESIDENT said it might be an unusual proceeding to venture to encroach upon the time of the meeting prior to entering upon the business of the day ; but the present marked an event in their history exceptionally unique, as the profession were meeting to-day for the first time in their new building, and which is the first possession the Royal College has been in a position to acquire. The Council has, therefore, felt very desirous to inaugurate the occasion with a word of congratulation and welcome. The recognition of the need of such a building for the business of the College is by no means of

recent date, for the requirement was acknowledged by leading men in the profession years ago, and the Council of former times also contributed their best efforts to launch the project ; but its completion has been delayed until the present day, the obstacles at the first seeming to be insurmountable. He could tell them that the Council, during the last two years especially, had borne up-hill work with collar pressure all the way in connection with enterprise, and none had flinched ; and to-day they had the pleasure through him of bidding to the profession a hearty welcome to their new home, which they hope may prove a satisfaction and a success for years to come. (Applause.)

The SECRETARY read from the *London Gazette* the notice convening the meeting.

On the motion of Mr. DRAY, seconded by Mr. WOODS, the minutes of the last annual meeting were taken as read and signed by the President.

Mr. DRAY moved that the annual report be received and taken as read.

Professor WALLEY seconded the motion, which was carried.

Mr. PRICE opened the discussion. He observed that the Report was not set out in paragraphs and numbered, and he thought if this were done in future it would be found to be a great convenience. The Report could then be considered paragraph by paragraph ; by that means discussion would be facilitated, and the thing would be thoroughly threshed out to the satisfaction of all present. He was very pleased to think that the Royal College of Veterinary Surgeons had at last taken into consideration the necessity of bringing an action against some of those individuals who still persisted in using the title of veterinary. He thought it would be as well if the different veterinary societies would take into consideration this important subject, and if the members would bring certain names before their respective associations, and the associations would send those names to the Royal College of Surgeons for prosecution, it would be doing the profession a considerable deal of good. The Registration Act was an excellent act in its way, and no doubt it would eventually do a great deal of good to the profession, but at present it had done considerable harm, because it had introduced a lot of men that were not looked upon formerly as qualified individuals, but were now looked upon by the general public as qualified veterinary surgeons, and were acting accordingly. They might depend upon it that unless they protected the term veterinary, they would be flooded with veterinary forgeries greatly to the detriment of the whole profession. He did not think the different medical societies would be going out of their way if they took this subject in hand and brought the matter before their respective meetings with a view to communicating the names of offenders to the Royal College for prosecution. Hitherto they had refrained from prosecuting because they did not call themselves a prosecuting body, but they had now undertaken the matter in three or four cases with satisfactory results, and that had cleared away the difficulty. Now they had once commenced they could not very well get out of it. Some arrangement as to the fines might, he thought, be made which would go towards the payment of the expenses. He believed the Society for the Prevention of Cruelty to Animals got half the fines (a voice, No). If it were not so all he could say was it ought to be. Coming next to the question of examination for the Fellowship degree, he was glad to see that the profession was making such rapid strides, and that this year instead of six or seven Fellows being admitted there were something like twenty-four or twenty-six. He wished particularly to draw attention to a matter which was mentioned on page 5 of the Report. It would be found there that any member of the College who wanted to present himself for the Fellowship degree had to get a certificate of good conduct and respectability from three Fellows. He was inclined to look upon that as a most objectionable clause. It did seem very much out of the way that members of the College

were not respectable enough to give such a certificate, but they must have a certificate of respectability from the Fellows if they wanted to present themselves for a Fellowship degree. He would suggest, therefore, the addition of the words "or Members" after the word Fellows, as he considered that the members were quite as capable of giving a brother member a good character as a Fellow, and with the permission of the President he would move that the words "or Members" be added. This passage of the Report would then read as follows :—"A candidate for the degree of Fellowship shall produce a certificate signed by three Fellows or Members of the Royal Veterinary College." He did not think the meeting could object to a simple alteration of that description. As to the requirement that candidates for the Fellowship should have been in practice for five years, he did not think that five years was long enough. He would be inclined to put it at ten years, because a young man might get a diploma at the age of twenty, and at twenty-five he might become a Fellow according to this paragraph. Thirty was quite young enough for any member to become a Fellow. He would therefore move "That a candidate for the degree of Fellowship shall produce a certificate signed by three Fellows or Members as to his status in the profession, and as to his having been in practice not less than ten years." As to the new building, so far as the room in which they were assembled was concerned, he thought it an excellent place for gatherings of this description. (Hear, hear.) This time last year he understood that members would have the privilege of being present at the laying of the foundation stone, and he thought the Council had made a grand mistake in not inviting them and giving them a grand dinner at the same time. If they had done so he believed to-day they would have been free of debt, as the occasion would have been favourable to the display of liberality. The Report expressed the hope "That a large and united effort will promptly be made by the members generally to launch their representative new building in a condition of completeness and freedom from debt or liability, remembering that this great endeavour to uphold the dignity of our profession compasses the interest of each individual alike." But he understood that this day the poor members of the College were to be disfranchised of their rights and privileges, and it seemed rather hard to ask them at the same time to give liberally towards a building like this, in the future management of which they were not to have any voice if this new Supplemental Charter was to come into force. The total building expenditure to date was put down at £4,739 19s. 11d., and he would like to ask about what the whole of the building would cost when completed. As to the Supplemental Charter of 1876, he had no doubt that his remarks would not meet with universal approbation ; but he did think it a pity that the members should be robbed of the rights and privileges which they had hitherto enjoyed, and he would propose a resolution to this effect :—"That this meeting of members of the veterinary profession desires the Council to apply for a Supplemental Charter, enabling all members who graduated prior to 23rd August, 1886, to retain all the rights of sitting on the Council and on the Board of Examiners if elected." Surely the Supplemental Charter of 1876 ought either to be repealed or another charter brought into existence to enable members to retain the rights which they obtained when they obtained their diplomas. No member of the Council who was not a Fellow would be able to sit on the Board after the 23rd of August next if this Supplemental Charter was put into practice, as according to law it was bound to be. There were several gentlemen on the Council at the present time who were members, but not Fellows, and of course they would have to vacate their seats. Up to last week Professor PRITCHARD and Professor AXE were only members.

Professor PRITCHARD said he would remain a member of Council, as he was a member of Council when the charter was obtained.

Mr. PRICE said that, at any rate, he presumed there would be some vacant chairs. (A voice, Only one.) One was sufficient as an illustration. He thought that he himself should have a right to be on the Council if members elected him. Of course that was a matter of opinion, but it was a matter that had excited considerable discussion throughout the whole of the profession. As time rolled on he hoped any differences of opinion between Fellows and Members would be swept away. A few days ago he read in the *Veterinarian* that Professor Pritchard and Professor Axe had had the Fellowship degree presented to them. In his opinion, there were no gentlemen in the profession who were more deserving of honour than those two gentlemen. Professor Pritchard especially had worked hard to uphold the dignity of the profession, and no form of honour that could be conferred upon them should be withheld, but it would also be as well if the same honour could be extended to members of the Edinburgh College, notably Professor Walley.

The CHAIRMAN said it had been done, the Council having been only too glad to include any gentleman who was a professor at the time. With reference to the remarks of Mr. Price, it was evident that one portion especially had given great satisfaction, viz., that referring to the increasing number of gentlemen who came forward to take the Fellowship degree. He had pleasure in announcing that in addition to the record last made, nine gentlemen had just taken the degree in Edinburgh, including some holding prominent positions in the profession. With reference to the propositions of Mr. Price, they could not be acted upon at this meeting, but they would be accepted as recommendations to the Council.

Mr. GLOVER said he had much pleasure in moving the adoption of the Report. Afterwards he would have pleasure in seconding the proposition of Mr. Price.

Professor PRITCHARD seconded the motion for the adoption of the Report.

Mr. HUNTING said that last year he had the pleasure of making a speech which was entirely congratulatory. On this occasion they had to congratulate themselves not only on their new building, but upon having got over the great difficulty concerning the Fellowship; for it would seem that members by their silence to-day had given assent to it, and had given up all this ridiculous assertion about the injustice of the proposition. (No, no.) He did not understand how members could complain of being treated with injustice. When some years ago the Council was instructed to obtain, and did obtain, after a great deal of trouble, a Charter of Incorporation from the Privy Council, containing amongst other things certain clauses relative to the granting of higher diplomas, the profession did it of their own free will and in the only manner in which it could legally be done, and now they grumbled and talked about injustice. But where was the injustice of their own actions? He could not see it. Again, it seemed to be thought that the only good of this Fellowship was that it gave a higher diploma, and was a sort of reward for scientific and literary attainments. It was nothing of the sort, but simply a sort of test or stimulus to make the members of the profession have a little more interest in scientific and literary matters, and also in professional matters, than they had done. It was common enough to hear members say they were taken by surprise at the time this charter was obtained. That was true, because they did not care one straw who were on the Council or what the Council did when they got there. Now, if they wanted to be on the Council themselves they must take a little interest in the matter and pass the Fellowship degree; it was because they had to take a little trouble in getting the Fellowship that all this row was kicked up. He could understand the objections of a man who could not pass a written examination which would satisfy the Examiners, but, on the other hand, they might object to such

a man representing them on the Council. It was only occasionally that a man had the impertinence to speak disrespectfully of the Fellowship examination. He used the word impertinence, because in doing so they must speak disrespectfully also of the Examiners, and he challenged any man in the room to find any three gentlemen whom they had less right to speak ill of than their present Examiners.

Mr. PRICE rose to order on the ground that nobody had ever made any observation against the three gentlemen to whom Mr. Hunting had alluded.

Mr. HUNTING said though gentlemen were not so impertinent as to speak disparagingly of the Examiners by name, by saying that the examination was not a test they insulted the Examiners. It was very well for gentlemen to say they did not go in for the examination on principle, but it was a tremendously high and mighty principle that a man showed when he would not take the trouble to do something which cost him money and trouble. He was inclined to think that they had heard nearly the last of the objections to the Fellowship degree. They had only to pay no earthly attention to what men on the other side had to say, and in twelve months' time they would have settled comfortably down, and most of them would have taken the degree.

Mr. GLOVER said he presumed it was intended to take the whole of the discussion before putting the motion for the adoption of the Report. As to Mr. Price's proposition, that credentials of respectability should be received from members as well as from Fellows, the reason he appeared to support it was that the Fellows were widely spread, and he could quite understand that a country practitioner might not be within hail of any Fellow at all. This would lead to a practical difficulty in getting three Fellows who would honestly certify that they were acquainted with his status in the profession. He was also prepared to second the proposition, that steps be taken to enlarge the area from which Members of Council might be selected, though it was not exactly in the form which he should have liked to have taken. But it would be open to the Council to make application for a charter in such a way as seemed to them to be most conducive to the benefit of the profession at large. Though Mr. Hunting had congratulated them with respect to this particular question, he thought if they could get a larger representation from the country districts, it would be found that a strong feeling of prejudice against the present arrangement existed. As to Mr. Hunting's remarks with reference to the examination, he would point out that no gentleman was anxious to be on the Council ; but it was the anxiety of others who thought it would be useful to put him on the Council, and it should be the duty of those who believed in a man being qualified to represent the profession to see that he had a fair chance of getting where he might be useful.

Mr. BURRELL took it that the Council recognised that there was great dissatisfaction amongst the profession in reference to this ninth clause, but it was no doubt true that the profession had only themselves to blame if they did not object to this clause before it was made law. Unfortunately, the profession did not consider the question sufficiently for themselves, but trusted to the Council to take care of their privileges, and, like Samson of old, when they awoke from their lethargy they found themselves shorn of their strength. The Report stated that the Committee appointed by the Council found that they had no power to rescind the clause. Well, that was pretty evident, and need not be discussed any further. Then they went on to say this could only be done by a new charter, and they considered, in the best interests of the profession, that at the present time it would not be advisable to take that step. He thought they might join issue with them there, as there appeared no reason why they should not apply for a new charter, the Council themselves admitting that an injustice had been done. (Hear, hear,

and No, no.) What was the meaning of the appointment of the Committee if that were not an admission that injustice existed? By the passing of this clause members were deprived of the right of sitting on the Council. Why? (A voice, For the good of the rest.) If they could bring themselves to believe that, they might bring themselves to regard the matter with a degree of composure, if not with satisfaction; but that was begging the question. The real evil was that the Council, as it would in future be constituted, would not be a truly representative body. If they wished to have a strong and united profession they must lay a very broad foundation. If they wished the profession to work as one man the privilege of sitting on the Council must be restored.

Dr. FLEMING thought that the charge that the Council of 1876 had acted unfairly was entirely unsupported. Those who were at present agitating could not, he thought, have read the history of the charter. The different clauses of the charter were discussed by the Council, and when it was presented to the annual meeting not a word was said against that clause, though that meeting was largely attended; nor was a word said against the clause by the different societies. The Council were accused of being robbers, knaves, and fools, but those who used these words did not, he thought, know their meaning, and not only that, but they were too careless to inquire into the history of the business. The attempt to throw cold water on the action of the Council of ten years ago was a very foolish one. Nothing was said about it until recently, and the profession had been rather apathetic. He himself did not think that the action of the Council had been at all in the wrong direction, and he was perfectly convinced that unless some stimulus to, and reward for, work were held out the profession would not advance. A member who would not take the trouble to study in order to pass his examination, was not likely to be a very useful member of Council.

Mr. GREAVES thought that in a short time the whole profession would be agreed that the Council had done the right thing.

Mr. EDGAR said this was a day of which the profession ought to be proud, and he hoped it would not go forth that the profession was divided on matters of detail. Having regard to the building in which they were at present assembled, he would ask gentlemen present not to oppose a Council which had done them such good service; this was a poor trumpery matter to have so much discussion about. If a gentleman had the interest of the profession at heart, he surely would not object to taking the only step which would enable him to gain a seat on the Council. (Hear, hear.) The motion for the adoption of the Report was then adopted.

Mr. PRICE's resolutions were afterwards put to the meeting and negatived by 37 against 25, and 33 against 27 votes respectively.

A member suggested an alteration in the date of meeting from the first Monday in May to the first Monday in June.

The PRESIDENT said the date of meeting was fixed by charter.

Mr. DRAY, in proposing a vote of thanks to the President, said that if anything was wanting to convince the meeting of his assiduity he could refer them to the Report, showing that he had attended six Council and seventeen Committee meetings. But these figures did not denote all the President had done, and the days he had spent in accelerating the finishing of the building. Having as treasurer been much associated with the President, he was bound to say he was a gentleman of unsullied honour and of unquestionable integrity. Before sitting down he would call attention to the very handsome timepiece which their President had presented to them.

Mr. WILSON said he would have much pleasure in seconding the proposition.

Mr. DRAY put the motion to the meeting, and it was carried unanimously.

The CHAIRMAN acknowledged the compliment, and thanked the meeting for having assisted him in bringing the proceedings to so friendly and desirable a close.

LINCOLNSHIRE VETERINARY MEDICAL SOCIETY.

THE annual meeting of the above Society was held at Lincoln on February 25th. The President, R. T. Hardy, Esq., took the chair, and there were present the following members :—Messrs. W. A. Field (Grimsby), T. E. Smith (Market Rasen), F. A. Holmes (Hemswell), J. Smith (Louth), B. Freer (Uppingham), J. Mackinder (Peterboro'), Capt. Russell (Grantham), F. L. Gooch (Stamford), G. Osborne (Fulston), L. L. Leach (Boston), F. Spencer (Wragby), Treasurer, and C. Hartley (Lincoln), Hon. Sec.

Mr. G. A. Banham, of Cambridge, was the guest of the day, and Messrs. R. Whitton, W. Ashley, and E. Murray were present as visitors. Apologies for non-attendance were received from Dr. Fleming, Professors Robertson and Walley, Messrs. J. M. Axe, J. Hoole, A. H. Brooks, A. H. Santy, T. Greaves, W. Hoole, J. W. Gresswell, and J. B. Gresswell.

As a preface to the business of the meeting, Capt. Russell practically demonstrated at Mr. C. Hartley's infirmary the use of Farmer Miles' instruments and appliances, also the use of the thermo-cautery.

The SECRETARY read some correspondence relative to the election on Council of members of the R.C.V.S., and after discussion, in which the President, Mr. Banham, Capt. Russell, and Mr. J. Mackinder took part, it was unanimously resolved that "This Society pledges itself to join the Southern Counties, the Eastern Counties, the Royal Counties, and the West of England Societies, and to vote for the candidates whom they may select."

The Treasurer's report was read, showing a considerable balance in hand.

Mr. J. W. Gresswell was then unanimously elected as President for the year, and Messrs. F. Spencer and C. Hartley re-elected to the offices of Treasurer and Hon. Sec.

Mr. A. H. Brooks, Long Sutton, was unanimously elected a member of the Society.

Mr. G. A. BANHAM, Cambridge, then read his paper on

THE "EXISTING PRACTITIONER" AND HIS RELATION TO THE VETERINARY PROFESSION,

which formed the subject of a lively discussion.

Mr. President and Gentlemen,—Permit me, firstly, to thank you for the privilege you have conferred upon me in allowing me to bring such a subject as this before you. It may appear a strange one to some of you, and many may think it useless, and unworthy of your attention. But as I have, in the course of my practice, been brought face to face with difficulties which appear to me somewhat troublesome to solve, I take this opportunity of asking you, gentlemen, to give me your ideas upon the subject, in order that we may arrive at some common understanding as to our position with regard to the "existing (registered) practitioner."

It is always as well to know each other's views upon any subject, more especially as they frequently cause us to modify or change our own. Individually, we may often be biassed by personal or other influences, and be apt to take too narrow a view upon matters affecting our neighbours' interest. Still, in dealing with such a subject as this, it is well, perhaps, to remember the motto, "Be just before you are generous."

I propose to consider this subject in the form of answers to the three following questions:—

1. Who and what are "existing practitioners"?
2. What is their position towards the public?
3. What is their position towards our profession?

"Existing practitioners" belong, as you are all aware, to various callings and positions, in which they have been more or less engaged in the treatment of animals in some form or another. During such occupation, they probably have had some of the animals under their care unwell and then tried their hands at getting them well again, in which they perhaps succeeded. After a few such trials, they would naturally consider themselves competent to undertake a similar office for their neighbours, until, eventually, they no doubt found their services were so often sought after, that they found little time for any other consideration. They therefore devoted the greater part of their time to this work, under one or other of the titles then in vogue, each according to their own sphere.

This, then, is the obvious origin of "horse-doctors," "cow-doctors," "dog-doctors," etc., for even in the present day many of them start and rise in the same manner.

1. Who has not seen the "horse-dealer," "trainer," "groom," or "shoeing-smith," who would venture an opinion upon anything connected with a horse, and who considered himself quite competent and willing to undertake the "cure" of nearly any ailment the horse is heir to?

2. So also do cattle-dealers, herdsmen, and even drovers, with regard to the diseases of cattle.

3. Shepherds, to a man, consider themselves adepts in treating the diseases of sheep; in fact, if they do not, their employers do not consider they know their business.

4. "Pig-dealers" are usually "pig-cutters," and are ever-ready advisers when anything is amiss with their customer's pig.

5. Dog-dealers usually consider themselves second to none in curing the diseases of their fancy; and they usually couple with it the diseases of cats.

6. Some chemists, and a few from other branches of trade, start in the line.

7. Sons of either of the foregoing, who started life in some other occupation, but who, at their father's death, leave it to follow their deceased parent's calling without ever having had any training beyond the recipes of the nostrums their fathers used.

8. There is now in existence yet another class of man, who busies himself very much about the ailments of animals, not only with reference to the pain they cause the creature, but also with regard to their "cure" or "relief." I mean the inspectors acting under the various societies for the prevention of cruelty to animals, who take advantage of their office for this purpose.

In addition to these "non-trained quacks," if I may so term them, there are others who have had what may be called a "training"; for instance, we find.

1. Sons of the above-mentioned classes, who have been brought up under their parents' guidance, and who have, for perhaps years before their parents' decease, acted as their assistants.

2. Persons who have been assistants, in the shape of "dispensers," "dressers," "agents," and so forth, to qualified veterinary surgeons. In this class we may include the ex-farrier-majors from the army.

3. Those who commenced their studies with the intention of entering our profession, but who were unable to pass the examinations—some of whom had previously studied under veterinary surgeons. I may here remind you, gentlemen, that many of this class were debarred in the time when our Council allowed a student three trials to pass the examination. Happily, this no longer exists.

4. Last, but not least, are those students who intended to enter our ranks, and who successfully passed one or two of their examinations, but were prevented from continuing their studies at the schools, and obtaining their diplomas, by some unforeseen circumstances over which they had no control.

From the foregoing you will see that the majority of the present "existing practitioners" are persons who have assumed a position under false pretences; since none of those I have termed "untrained" can have any satisfactory knowledge of what they are doing in cases of disease in the lower animals. They neither know the structure of the animal, the nature of the disease, nor the action of the remedies they use.

The same remarks apply to the first-named of those I have termed "trained"; for their training has been given them by persons who are themselves incompetent of giving any training at all, in the real sense of the word.

The second class may be said to have had a training in special work, but under no circumstances can they be considered fit persons to have the care of sick animals wholly under their charge, although many of them are good assistants (during operations) and nurses under the guidance of a veterinary surgeon.

The third class are evidently men of low educational calibre, and unable to grasp the subjects they chose to study; or perhaps they were lazy and indolent students, taking their pleasures and spending their energies in other employments, which, if they would follow instead of that of the study of veterinary medicine, might furnish them with a fair field for success.

The fourth class of men are certainly worthy of our consideration, and well deserve our sympathy and assistance, and are entitled to all that can be conceded to them by the public and the profession.

So much then, gentlemen, for the various classes from which the "existing practitioner" has been derived. If there are any other such which I have omitted, or not fully described, some of you, I dare say, will supply the omission.

We will now pass on to consider *the Relations of the "Existing Practitioners" to the Public.*

When we look back and see that veterinary surgery has only existed as such in this country for ninety-five years, the question naturally arises, what did the public do for assistance to their sick animals before that time? Why, got it when, where, and from whom they could, and no persons were more likely to be appealed to than those who had the charge of them in health. Hence the old adage, "To know disease, we must first become acquainted with health." The more fortunate and successful of these men after awhile began, as a Newmarket man would say, "to fancy themselves," until eventually they gained a reputation, and followed the calling for a livelihood. The same kind of thing has been going on, more or less, ever since, especially in districts where educated veterinary surgeons did not settle down to practice.

In 1863, as the editorial in Vol. 14, p. 112, of the VETERINARY JOURNAL points out, the number of members of the Royal College of Veterinary Surgeons was comparatively small (less than half what it was in 1885), so that several districts in England were unprovided with qualified practitioners. The inhabitants of such districts were naturally grateful for any assistance they could obtain in time of need. I maintain, therefore, that the public in such districts owe these self-made animal doctors a debt of gratitude—for no doubt they rendered the best services they could to the public when no other could be obtained, and no one could do more than their best under any conditions. Therefore, these men deserve the esteem, the gratitude, and the protection of the public.

Of course the foregoing only applies to the times and places when edu-

cated veterinary aid could not be obtained. In those places where good and honest qualified practitioners reside, what do we find? Why, that any "shoeing-smith," "pig-cutter," "castrator," or "groom," undertakes to treat animals in disease, and the public employ them, not because they believe they are more competent and skilful than the qualified practitioner, but simply because their conscience (?) is easy, as something is being done, and that, too, at a cheaper rate than a qualified man would charge for it. The cases that are placed in these men's hands are usually simple ones, and they get well. This gives them the confidence and assurance so characteristic in this class of men. They then begin to play upon the public with their tongues and nostrums, and find it pays. Now, what claims such men have on the public I am at a loss to know. The public have far greater claims on them; the public owe them nothing, they owe much to them. However much the public may owe to those men who helped them when they could not help themselves, they owe nothing to those quacking charlatans who reside in districts where educated assistance could be had if the public chose to ask for it. And it appears to me that the sympathy these men received from the Privy Council was quite as unjust as were the reproaches lately bestowed upon the unemployed when a lot of rogues and thieves took advantage of their gathering to plunder, pillage, and destroy personal property in the West-end of London.

We will now pass on to the third and most important part of the subject, viz., the Relation of the "Existing Practitioner" to Members of the Royal College of Veterinary Surgeons. It has been said "that the cow-leech, farrier, and the emasculator were the fathers of our profession." If this were so, it might be supposed that they were entitled as such to our respectful consideration. However, I, for one, beg respectfully to differ from this view, inasmuch as I do not believe that the foundation of veterinary surgery is in any real sense due to this class of men. They neither studied nor tried to improve the treatment of animal diseases, and no such thing as veterinary medicine or surgery existed, either as a science or art even, except, perhaps, in a few single individual minds, before a Frenchman named Charles Vial de St. Bel started our Veterinary School in London in 1791, who, in my humble opinion, was the father of veterinary science in this country. We cannot deny that practitioners existed, but I do not know that any of them ever assisted in founding the teaching school.

Nevertheless, I think that each one of us will admit (and I believe many of the "existing practitioners" themselves even would) that they owe much to us. How many of us are there that, at one time or another, have not given them some little hint, some caution, some recipe—ah! and even performed operations for them free of expense, etc. As a proof of this, I will, with your permission, quote a little anecdote that happened in my own knowledge.

A retired qualified practitioner, residing in my district, used (when in practice) to be frequently called in by a farrier, living some eight or nine miles away, to assist him out of some difficulty or other, or to perform some operation which he did not consider himself competent to undertake. This state of things existed amicably enough for several years; and when Cattle Plague was in this country, the qualified practitioner had so much to do that he recommended the farrier to be appointed his assistant in the district where he resided, which was acceded to by the Executive Committee. This appointment naturally introduced the farrier to many men he did not know before, and really gave him a standing in their estimation, and he used his appointment as an influence to extend his practice, and succeeded in doing so; every now and then calling in the aid of his old friend, although not so often as in former years—in fact, he began to have more confidence in himself, and so could dispense with his adviser. On one occasion, however, the

qualified practitioner asked him what he administered to animals suffering from a certain malady, which he had of late been rather successful in treating. The quack answered, "Ah ! that is a secret, and if I tell it to you, you will be as wise as I am." This rather staggered the veterinary surgeon, after what he had done for the man. The result you can imagine ; he never met him again on the same terms as before. However, this made no difference to the quack, as he had got sufficient information from his qualified friend to answer his purpose, and was, as he termed it, "independent of him now." This, gentlemen, is an example of the men that are "registered practitioners," and the treatment we may expect from them. All that I will say is that this should be a lesson to all of us, as it undoubtedly was to my friend, who related the story to me.

I must apologise for using such personalities, but trust the inference to be drawn from it is not unworthy of your consideration.

Well, gentlemen, to resume my text. The "farrier" and "cow-leech," etc., were quite content with their position, and were men of meek and humble minds, until St. Bel began to send forth his pupils to the world as "*Veterinary Surgeons*." It is true they were only taught the elements of the science ; still, they began to make their stand before the public, and became appreciated by them. When the farrier and cow-leech saw this, some of the more audacious began to assume the title of "Veterinary Surgeon" themselves, although the majority, be it remembered, were content with their own special titles and descriptions.

This state of things existed until the veterinary surgeons obtained their Charter in 1844, which was intended to give its members the exclusive privilege to use the title of "Veterinary Surgeon." However, it was found, as Dr. Fleming expressed it, that a Charter does not constitute a law, but merely confers privileges, which, again, have to be protected by Act of Parliament. This protection our Charter never received, and therefore those who assumed the title "Veterinary Surgeon" were not acting unlawfully. Thus we proceeded until 1863, when our Council began to stir itself to think about getting a "penal law," and they thought well, for their deliberations lasted until 1867. But the thought was stillborn, and these charlatan practitioners still had the privilege of styling themselves "*Veterinary Surgeon*"; and it continued until 1881, when the Veterinary Surgeons Act became law. But we must also remember that, although the empiric could legally use the title, still very few of them availed themselves of the privilege until after the Act was passed, which was a means of enlightening them on the subject. The Act is so fresh in all your memories, that I am sure I need not draw your attention to any of its clauses. It not only taught unqualified persons that they could use the title "Veterinary Surgeon" without legally offending anybody, but also that we had no exclusive right to it ; and, moreover, that we could not hinder anybody who wished to register from doing so. Although several of our members considered it was, and ought to be, our own special title, still, as has been before said, "The more reasonable members never expressed a wish for more than that the public should be able to distinguish between qualified and unqualified practitioners ;" and this the Act accomplishes by requiring that they shall have separate and distinct registers—the unqualified being registered under the head of "Existing Practitioners." This distinction confers no benefit or privilege upon them beyond what they possessed before the Act was passed, except so far as it protects them from the penal operation of the Act as applicable to unregistered persons.

From this it will be seen that since 1881 every person who has registered has a legal right to use the title of "Veterinary Surgeon," and why should he not ? The title never was ours by law, and therefore we have no exclusive right to it, although many of us were under the delusion that we had. If our

forefathers were so remiss as not to legalise it, we have received our reward—viz., their sin has fallen upon us, and now we must bear it with as good grace as possible.

One more word about our Act, and we will pass on. Although it did not embrace so much as some would have wished, still I believe most of us now believe that we obtained all that we should have ever expected, and certainly all we could reasonably ask for.

Previous to the passing of the Act these persons could not only have usurped our title (Veterinary Surgeon), but also our "letters" (M.R.C.V.S.), as no law existed to prevent this assumption, and therefore no illegality could be laid to their charge (VETERINARY JOURNAL, Vol. 16, page 102).

Now, gentlemen, bearing these facts in mind, what are our relative positions after the Act has become law? There is no doubt the list of "existing practitioners" contains the names of many worthy common-sense men, especially those gentlemen who in their younger days studied under graduates of the R.C.V.S. and afterwards passed through part of the college curriculum. Such men (as was mentioned above) should receive sympathy and assistance in every way. On the other hand, we must admit (if the various reports are true) that a large proportion of them are illiterate, conceited, self-confident quacks (in its literal sense), and several of them should never have been placed on the register at all had we been fairly treated.

Nevertheless, I suppose we must be content with the fact that if any "have procured registration by means of false statutory declaration, they are liable to a heavy penalty at any time, and to the removal of their names from the register, while those who aided them by certificates are equally liable to punishment." This looks all very well in black and white, but when any of us wish it to be put into practice, we find there are many stumbling-blocks in the way of our doing so.

Now, gentlemen, I will ask this meeting to discuss, firstly, *What are the best means for obtaining justice with regard to offenders against the penal laws of the Veterinary Surgeons Act?* I would remind you that the Act says in Clause 19, that "A prosecution under this Act may be instituted by the Council of the R.C.V.S., but shall not be instituted by a private person without the written consent of the Council." This, I think, is important to be borne in mind when discussing the subject. Personally, I should like to see a fund for the purpose started, and placed in the hands of our Council for them to prosecute, under the direction of their solicitor, in all cases of offence against these laws. I do not think the responsibility of prosecutions should be left to individual members at all, although certain cases may be primarily annoying and detrimental to individual members. Still they are really detrimental to the profession at large, and should be dealt with by the profession in its associated capacity.

The next question I would ask your opinion upon is, *Whether "existing practitioners" are responsible for their actions in the eyes of the law, now they are legal practitioners?* I should say they ought to be. If the law says (or infers) they are competent persons to undertake such duties for the public, the latter ought to be able to recover damages, should they suffer any loss by such practitioners, especially as the Privy Council ruled that our Council ought not to inform the public that "*As these persons (registered practitioners) have not undergone the qualifying test prescribed by the R.C.V.S., the Council do not hold themselves responsible in any way for their professional qualification.*"

Another question I will put to the meeting is, *Should "existing practitioners" be employed as veterinary surgeons under the Contagious Diseases Act?*

I cannot help thinking they should not; not because they have no right to

such practices, for I believe they have a legal right to any and all the practice they can get. Nevertheless, when public money is being spent, the public themselves have a right to insist that the spending of it should be entrusted to the best possible men, and no others. Therefore, they should appoint properly-qualified men to act under them to ensure this. Moreover, I think, when a person has gone to the expense and trouble of educating himself in all the details of a profession, he, as one of the public, has a claim upon them before another who has done nothing for himself or the public, except set himself up amongst his friends as a person who knows all that is required to fill the post. Appointing the latter not only discourages a very useful public profession, but it also seems to me unjust to the public themselves.

The last and most important question, and the one upon which I especially wish to elicit the opinions of the meeting, is, *Whether we should meet existing practitioners in consultation, and, if so, upon what terms?* My views upon this subject are already before the profession (VETERINARY JOURNAL, Vol. xxi. p. 115), but I will again state them here, as an opening to a discussion. In considering this question, we must not forget our position to the public, the patient, and the profession, as well as the practitioner himself.

As we are in duty bound to serve the public faithfully whenever called upon to do so, as also to relieve a suffering animal if we possibly can, I do not think we can honestly refuse our services, even if asked to give them by the "existing practitioner" himself; much less ought we to think of doing so if his client should ask us.

Well, if this is so, how should it be done?

Whether the client or the practitioner himself call us in, it matters not. We should, if possible, see the latter in both cases, not only as a matter of courtesy, but to find out what has been done, so as to enable us to arrive at a correct opinion. After we have heard his explanation and line of treatment, and made our examination, we can then name the disease the animal is suffering from, and proceed to give our directions as to the administration of remedies, which should, in all cases, be prepared by ourselves, and not given by word of mouth or in the form of prescription to the "existing practitioner" in attendance. Under no conditions should we inform him of the nature of the medicine we intended to use, nor of the reasons for our treatment. This is not only unnecessary, but harmful to the profession, and especially—as too frequently happens—the "existing practitioner," although there may be a properly-qualified veterinary surgeon, will generally be found to call in the aid of one residing out of the district. In this case, then, any knowledge we may impart to him will be acquired not to your detriment so much as to some other brother veterinary surgeon, and, if we instruct him, we are doing an injustice to the qualified man.

On the other hand, we should never take the case out of their hands, but leave it for them to watch and report from time to time. We can continue to send medicines for the "existing practitioner" to administer, as we may think necessary; but we should never call a second time unless specially asked to do so, unless there is some previous understanding with the practitioner in attendance. Otherwise they may think we are endeavouring to take the case out of their hands.

If this line of treatment is followed by all of us, I think there will be little cause for any complaint from brother veterinary surgeons residing in the district, and if the "existing practitioner" thinks such treatment unfair and hard, it cannot be helped. I am perfectly convinced we ought not to do more for them than this, and they ought not to expect it of us, except, perhaps, those who have been to college and passed some of their examinations. In such cases we can talk over and reason out the case with them and leave it

entirely in their hands—in fact, treat them as we should one another. This line of meeting “existing practitioners” is based upon the fact that we cannot consult with men who have no real scientific knowledge of their case or of the medicines they use; where such fundamental knowledge is wanting, there can be no consultation in the proper sense of the word; secondly, that it is unfair to brother practitioners living in the district; and, thirdly, that it leads the “existing practitioners” to suppose they know more about such matters than they do, as the case cited above proves. Our duty is not to assist them, but to assist the owner and relieve the patient.

I could say, perhaps, more in detail about the subject, but I trust sufficient is before you to form a basis for discussion, which I now invite.

Perhaps it may help to give a definite form to the discussion if I briefly repeat the headings under which the questions have been formulated:—

1. How shall the penal clause of the Act of 1881 best be put into force?
2. Do you consider that “existing practitioners” are responsible for their actions in the eyes of the law?
3. Should they be employed as Veterinary Inspectors?
4. Should we meet them in practice, and, if so, on what terms?

To this may be added another question, sometimes mooted, as to our admitting them to our professional societies. I think, however, this hardly needs any comment from me, further than that I cannot see how we can admit them there any more than that we can consult with them about disease and medicine. If we do one we might very well do the other.

After a hearty vote of thanks had been passed to Mr. Banham for his important paper, the members and friends dined together at the Albion Hotel.

Grimsby was selected as the next place of meeting.

NORTH OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

(Continued from page 353.)

Habitat.—Between the mucous and muscular walls of the stomach, in which situation they cause the production of trabeculated tumours, or abscesses, from an inch to an inch and a half in diameter, which usually contain more than one parasite; some of these growths may be observed in which no worm exist, they having passed out into the cavity of the viscus through the holes which are seen penetrating the structure in a transverse manner. They are more common in old than in young animals. Although not regarded by veterinary surgeons as of great importance clinically cases have been recorded where their presence has apparently been attended with serious results. One fatal epizoöty is recorded as having occurred amongst mules in the Mauritius in 1876, which, by competent authorities, was attributed to this entozoön.

6. *Spiroptera microstoma*.—Small-mouthed maw-worm.

Form.—Very much resembling the preceding; the mouth is, however, smaller, almost square, and instead of four prominent labial protuberances, there are only two, with some differences in the caudal papillæ. In length they vary from 12 mm. to 18 mm.

Habitat.—Free, in the gastric cavity.

7. *Strongylus Axei*.—This name has been given by Dr. Cobbold to a very minute worm, about 5 mm. in length, regarded, from its caudal bursa, as belonging to the genus Strongyles, first observed and noted by Professor Axe in the stomach of the donkey.

The animals in which this parasite has been found were aged animals, but as yet no clinical symptoms have been indubitably associated with their presence.

Habitat.—Although somewhat resembling the *Spiroptera macrostoma* in its close relationship to the walls of the stomach, it is so far unlike it that no tumours or elevations exist in which it resides, but it is merely located under the surface of the membrane itself. In some cases which I examined there were scattered over the mucous membrane of the gastric portion around the pylorus numerous spots, slightly elevated or indented, as if the mucous membrane had suffered erosion or irritation, ending in exudation. These spots varied somewhat in size, from a third of an inch in diameter to irregularly-margined tracts larger than a florin. The edges were slightly raised, not unlike a ruptured vesicle from a burn. Gently scraping these parts, and examining the material removed, disclosed the presence of numerous nematode worms, very slender, but of considerable length.

Symptoms and diagnosis.—With the nematode, as with the previously-mentioned tapeworms, their presence in the intestinal canal is only attended with disturbance sufficient to attract attention when they are numerous, or when the host is operated upon by other adverse and unfavourable influences. Occasionally they give rise to congestions, inflammations, or textural changes, of an ulcerative or necrotic character, over the portions of the canal which they inhabit. In rarer instances they may produce obstruction of the bowels, through their numbers or association; or dangerous and complicated symptoms may exhibit themselves from migration into near or more distant organs.

The symptoms ordinarily connected with their presence are such as may be referred (1) to *local irritation*; (2) *reflected disturbance*; (3) to *general functional disorder*.

The local symptoms are abdominal irritation and pain, capricious or depraved appetite, in which unnatural materials are greedily devoured, foul breath, and an irregular character of the intestinal discharges. Many cases of what are termed Colic owe their existence to disturbance occasioned by intestinal worms, and are only successfully treated when the existence of these is taken into consideration.

The chief reflex phenomena are itching or irritability at the mucous orifices, evidenced by rubbing the tail and points of the hips, curling of the upper lip and rubbing of the nose, with, more rarely, a drowsy lethargic condition, muscular tremors, or serious convulsion fits.

The general disturbance includes wasting or marasmus, notwithstanding, often, a rather large appetite; fatigue out of proportion to the work undergone; a dry, unthrifty condition of the skin, with loss of sprightliness and vigour.

All these symptoms may exist, and the question may still require to be determined how far these are dependent on the existence of parasites. The diagnostic indications are the passage of the worms, portions of these or their ova; and, with this object in view, when such symptoms as we have mentioned present themselves, it is always desirable that the discharges from the bowel be submitted to careful examination, in order that our diagnosis may be placed beyond mere speculation.

With the large ascarides, when their numbers are considerable, it is not an uncommon feature to have recurring attacks of indigestion and abdominal pain, while wasting of flesh continues in spite of a large consumption of food.

In cases of invasions of the palisade worm, in addition to similar attacks of disturbance attributable to abnormal conditions of the intestinal canal, we not unfrequently encounter varied trains of symptoms of an occult character, unaccounted for by other changes, and probably the result of injury inflicted by the parasites in their migrations in different parts of the body, the particular class of symptoms being attributable to the special organ or structure invaded.

From the presence of the *Tetracanthus strongylus*, symptoms of serious intestinal disturbance are more likely to be encountered than with the other helminths. These parasites are largely found in young, ill-thriving, and indifferently-fed animals, and where the pastures are of an inferior and rank character. It is very probable that the unthrifty character and want of flesh which these subjects exhibit is more largely the result of the parasitism than its cause.

From the individual character of these helminths, and the situation which they occupy in the intestinal walls, the irritation associated with their presence is usually of a chronic character—at first not very attractive, but always of a serious nature.

The most attractive symptoms—and, apart from the detection of the worms themselves, the most diagnostic—are distinct and increasing marasmus, with a shaggy condition of the coat, pendulous abdomen, feebleness and exhaustion in being put to active exertion, together with recurring persistent and fatal Diarrhœa. Even a moderate number of these worms, I have found, induce intestinal irritation and textural changes, sufficient to permanently invalid horses, and render them an easy prey to unfavourable influences with which they may be surrounded.

Where the *Oxyuris curvula* exist in numbers sufficient to disturb, the most characteristic features are the local irritation at the anus and nostrils, with a dry, unthrifty condition of the skin, depraved appetite, and collections of orange-coloured pasty material, their eggs around the anus.

Treatment.—When satisfied that any of these varieties of worms exist in the intestine, means must be adopted to destroy or expel them, through the use of such agents as experience tells us possess vermifuge properties. With nearly all, save the *Tetracanthus strongylus*, during its lodgment in the intestinal walls, this may be carried out with reasonable hope of success. With the large *ascarides*, the *palisade* worm, and the *oxyuris*, from one to two fluid ounces of oil of turpentine, administered with a pint of gruel, mucilage, or oil, for one or two mornings in succession, and followed on the third by a moderate dose of aloes and calomel, will be found successful. Santonine, in half or whole drachm doses, made into powders with linseed meal, and given for two or three mornings consecutively, and followed with a laxative, as in the case of the oil of turpentine, is also efficacious. It possesses the advantage that, from its nearly tasteless character, it is usually taken readily in the food. Pure carbolic acid, one drachm, combined with an ounce of spirit or glycerine, and exhibited in water or gruel, has been found beneficial in causing the death and expulsion of all nematode worms. This draught may be repeated, like the terebinthinate mixture, and, as with all vermifuges, is advantageously followed by the employment of laxative agents.

Besides these individual vermifuge agents, I have found that a most efficient ball may be compounded of Pulv. antim. tart., ʒiss. ; Calomelas, gr. xxx. ; Ol. filic. maris et Ol. sabinæ, ā.ā., M. 60 ; Pulv. zingiber., ʒj. ; Tereb. Venet., q.s., or Pulv. aloes Barb. ʒi-ʒij. ; Calomelas, gr. xxx. ; Antim. tart., ʒi. ; Pulv. santon. et Pulv. zingiber., ā.ā., ʒj. ; Treacle and linseed meal, q.s. Either of these may be given two or three mornings consecutively, and should purging not occur after the second or third ball, an ordinary laxative ought to be administered. In many cases it will be found that the second ball nauseates and causes purging, in which case a direct laxative must be withheld. Where the *Oxyuris curvula* is the disturbing parasite, in addition to the administration of medicines by the mouth, benefit will often be derived from the employment of an enema, seeing the entozoön is located in the posterior bowel.

The fluid used may be simple water, or a solution of common salt or perchloride of iron, or infusion of tobacco, gentian, or quassia. The use of

this enema to be persevered in for some weeks, two or three times weekly ; and it is advantageously combined with the employment of sulphate of iron as a general tonic having vermifuge properties.

When, from the discharge of the *Tetracanthus strongylus*, in any form, we feel satisfied that the state of continued ill-health or intestinal disturbance is owing to the location of these in the intestinal walls, great care is needful that any vermifuge we exhibit may not aggravate the condition of local irritation already existing. We may cause ejection of the worms when in the lumen of the bowel, but we have little power over those encysted in the bowel tissues. With the exception of an occasional dose of laxative medicine, more benefit is likely to result from careful regimen, good stable-management, and pure tonics. These latter, in the form of sulphuric acid and sulphate of iron, or of acid with quinine, or liquor arsenicalis, may, with intervals of rest, be continued for months.

Such medicines as these, with attention to diet and proper sanitary conditions, and, as already stated, occasional doses of a mild laxative, are more likely to be beneficial than any irritating agents.

In all cases, even when the agents employed are acting in the destruction and removal of the parasites, every attention ought to be bestowed in attempts to fortify and strengthen the system both by correct diet and the use of tonics.

With the employment of means to remove the worms, and generally to improve the health of our patient, care will require to be exercised to prevent reinfection of the patient or the propagation of the parasites to others yet uncontaminated.

This prophylactic treatment is to be secured by the removal and destruction of all ejected parasites or excrement containing these or their ova, so that, neither directly or indirectly, through food, water, or stable utensils, there shall exist a chance of these entering suitable hosts.

Notwithstanding the employment of all these means of a directly curative, supporting, and preventive nature, it must not be forgotten that, where the offending parasites are possessed of wandering propensities, there is always the possibility, or rather probability, that symptoms of an entirely different nature from such as are ordinarily connected with the presence of these organisms in the bowel are liable to crop up, and that such are liable to vary in accordance with the tissue or organ invaded.

These untoward conditions will necessitate treatment in accordance with the symptoms developed and the organs attacked, not instead probably, but rather in addition to those directed to combat the intestinal Helminthiasis.

The PRESIDENT said they had listened with very great pleasure to the interesting paper which Professor Robertson had just read to them, and, as the time at their disposal was now short, he thought it would be well to adjourn the discussion on the paper to the next quarterly meeting.

Mr. H. HUNTER said they could not do better than adopt that suggestion. If the members had an opportunity of reading the paper before the next meeting, they would all be prepared to take part in the discussion.

Professor ROBERTSON : I may not be able to be present at your next meeting. If I can, I will.

Mr. D. DUDGEON proposed a cordial vote of thanks to Professor Robertson for reading such an instructive paper.

Mr. PEELE seconded the vote of thanks, which was unanimously agreed to.

Mr. H. HUNTER proposed a vote of thanks to the President.

Mr. A. CHIVAS seconded the vote, which was agreed to.

Mr. D. DUDGEON moved that the President's address should also stand over for discussion at the next meeting. The address contained many things which might be profitably discussed.

The motion was agreed to.

The annual dinner was afterwards held, under the presidency of J. B. Nesbit, Esq., and was largely attended by members and their friends. A number of veterinary topics were discussed, several songs given, and a most enjoyable evening spent.

LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

A SPECIAL meeting of the above Association was held at the Blackfriars Hotel, Monday, April 5th, 1886.

Present :—Messrs. T. Briggs (President), Peter Taylor, Thomas Greaves, W. Whittle, W. Woods, Sen., James Howell, John Lawson, A. Lawson, T. Hopkin, W. Taylor, A. M. Michaelis, S. Locke, S. Horrocks, W. Dacre, A. New, J. B. Taylor, J. B. Wolstenholme, A. Leather, J. Storrar, J. Faulkner, J. Dixon, and Jno. Ingram.

The SECRETARY reported that, acting on resolution of March 10th, he had written the Secretary of the Midland Association, desiring to know if their nominee (Mr. Perrins) would pledge himself to vote for the repeal of the 9th clause.

The reply which had been received came before a meeting of the Election Committee, held March 29th, and in the opinion of which Committee it did not meet the requirements of the resolution referred to.

Under these circumstances, the President had convened this special meeting to take the opinion of the Association on the subject.

After considerable discussion, during which several propositions were made and negatived; it was resolved to adhere to the original resolution of March 10th, that we co-operate with the Liverpool and Yorkshire Associations, but not with the Midland, as the policy of their nominee was not in accord with the above resolution.

The PRESIDENT gave notice that at the next quarterly meeting he would resign his office, and give his reasons for so doing.

Mr. GREAVES tendered his resignation as a member of the Association.

A vote of thanks to the President concluded the meeting.

JAMES W. INGRAM, *Hon. Sec.*

THE WEST OF SCOTLAND VETERINARY MEDICAL ASSOCIATION.

A MEETING was held in the Veterinary College, Glasgow, on the 5th May. The President (Mr. Anderson) occupied the chair. Sixteen members were present.

Mr. POTTIE, Paisley, described some cases of Scrotal Hernia, which he had successfully treated by means of a truss designed by himself. He showed the truss and explained its application.

At the request of the Society, Mr. POTTIE consented to exhibit the truss at the Edinburgh meeting of the National Veterinary Association.

Mr. WEIR, Glasgow, showed a fine specimen of a fractured navicular bone.

The CHAIRMAN asked the members to examine some parturition instruments invented and sent by Mr. P. M. Walker, M.R.C.V.S., Halifax.

Mr. NUNN, F.R.C.V.S., A.V.D., was elected a member of the Society.

The PRESIDENT intimated that Mr. Campbell, Kirkcudbright, had promised to read a paper at next meeting on Parturient Apoplexy.

J. MACQUEEN, *Secretary.*

SOUTHERN COUNTIES VETERINARY MEDICAL ASSOCIATION.

(Continued from page 378.)

Anatomical Characters.—Besides the usual alterations in form from the unnatural curvature of the shafts, when this exists, and the enlargement of the epiphyses in all, rickety bones are unnaturally soft, in many instances being capable of being cut with a knife, while the periosteum is thickened and vascular. The most marked changes are, however, at the epiphyses themselves, the cartilage of development and the periosteum covering these. Over the whole expanded articular extremity, and particularly in the area of the cartilaginous development, in the young or growing bones the process of proliferation and delayed ossification is well marked. In this latter situation, recognised by the naked eye, in the normal state, by a well-defined blue line, there seems great activity, and it is unnaturally extended. The abundance of the cell growth does not, however, seem, as in the normal condition, to possess a definite arrangement: centres or nuclei of ossification may be observed, at different levels, both in the blue zone and extending beyond it, cartilage cells mingled with osteo-blasts; but there is no regular advance of the ossifying process, no well-defined medullary spaces; the entire bone structure of the extremity is opened out and rarefied, the medullary cavity extending beyond its normal limits, and the extremely-developed cancellous structure containing numerous spaces, which, with the rarefied bone tissue and medullary canal, are filled, particularly at first, with a reddish pulp, composed of fat, nucleated cells, and blood corpuscles. Under the periosteum, the other seat of bone growth and development, we observe the operation of a process somewhat similar to that noticed as existing in the epiphyses; the sub-periosteal layer is increased in thickness and vascularity, and there is great preparedness for ossification, without its accomplishment. Instead of dense, compact bone structure, fitted for increase of the shaft, it is granular and soft. The fibrilated tissue which passes, or ought to pass, into the shaft does not undergo ossification, so that the entire bone structure is represented by a thin layer of osseous matter imbedded in much softer or simply fibrilated matrix. When recovery takes place, a change occurs, for the lime salts are deposited in this matrix, but not in combination, as in health, and the result is rather calcification than ossification.

In the cases of lambs, the anatomical characters which are encountered are extremely interesting; for, although not situated in similar parts of the skeleton, they illustrate and explain the different symptoms which these animals exhibit when suffering from this disorder of bone nutrition. In noticing the symptoms, it was observed that with lambs the distinguishing were motorial disturbance and perfect paraplegia, and that rarely were the bones of the extremities affected, as in many other young animals.

Carefully examined, neither the bones of the limbs nor the visceral organs afford evidence explanatory of the symptoms exhibited during life. With these cases of rickety lambs, it has been stated that examination showed evident changes in some parts of the central nervous system. These, it is stated, are more particularly observed in the spinal canal and cord. In the cavities of the coverings the normal quantity of fluid is said to be increased, while changes of a varying character, it is stated, have been noted in the intimate nerve elements. That both these conditions may be seen, I feel satisfied; that they are invariably well marked, I do not believe. The former I have noticed with more constancy than the latter, which, save in rare and prolonged cases, I have never been able to satisfy myself existed. Of more importance, however, probably, than changes of a doubtful character, which may be made out in connection with the intimate structure of the cord, are

alterations in the bone elements which form the canal in which the cord is lodged. Here it is well to recollect that, in growing bones, each individual vertebra, in its body, is made up of three sections—a central portion and two epiphysial plates, each plate united to the centre by an intervening disc of cartilage. In healthy bone these plates are merely thin, clear lines. When Rickets develops, however, the same cell proliferation occurs here which was noticed in the epiphyses of long bones, the soft and rapidly-growing tissue bulges and projects into the canal. With an average amount of care in conducting an examination of the cord and vertebral canal, it will, in the majority of these cases, be clearly enough made out that any changes observed in the cord are more likely to be the result of pressure, proceeding from changes of form in the bony canal in which it is lodged, than from alterations in its intimate structure. When making this examination, it is better to carry out a longitudinal section of the bony column throughout the canal than to lift the roof by dividing the arches. When thus divided, a little examination will disclose the fact that in many instances the cord exhibits portions more or less restricted, these constrictions being opposite the union or articulations of the vertebræ. The cause of this regularly-distributed, but interrupted constriction is, the uneven condition of the floor of the canal, from the swelling of the epiphysial cartilaginous plates; the ultimate result being to produce pressure and constriction of the contained cord, with, probably, increase of fluid in the cavities of the investing membranes. This swelling of the individual extremities of the separate portions of the vertebral chain is dependent on the imperfect bone development incident to a general state of malnutrition. Thus, in these very young, the local evidences of the general disturbance are chiefly confined to the bone elements constituting the spinal column; in other animals, and in older of the same species the lesions show themselves more in the passive organs of support, the bones of the limbs.

This particular invasion of the bones of the spine in lambs is an exact counterpart of what has been observed in several species of wild animals retained in captivity, both at puberty and in early life.

A detailed account of this condition of these animals, by Mr. Bland Sutton, may be found in the *Journal of Anatomy and Physiology*, Vol. XVIII. In this contribution to comparative pathology, carried out through a very large number of after-death examinations of different species of animals, Mr. Sutton arrives at the conclusion that half the animals kept in captivity in this country die from Rickets; that the proportions in which the local lesions are encountered in the axial and appendicular parts of the skeleton differ less in the different species than they do in the same species at different ages; also, that in very early life, in all, the probabilities of the long bones of the limbs being largely invaded are greater; that, after puberty and in adult life, the proportion in which the changes are observed are reversed.

2. *Fragilitis Osseum, vel Mollities Osseum*.—I will not detain you with attempting to prove either the identity or non-identity of the conditions which have been recognised by these terms, nor to make an endeavour to prove that both are merely forms of Rickets modified by the modification of the normal physiological processes attendant on age.

If not identical with Rickets, they are closely allied to it, as perturbation of bone nutrition, while I think I may be able to show, when we come to speak of the etiology of these conditions, that in sheep, at least, they are intimately related, if they do not arise from precisely the same extrinsic causes.

Although bone-softening and fragility, as a constitutional disturbance apart from inflammatory action—whether we regard these as affections *sui generis*, or merely as Rickets of adult life—have probably a less extensive record, and have attracted less attention than what is *par excellence* regarded as Rickets, there is yet no reason to doubt their existence in all animals.

The parts of the skeleton where these changes are more particularly observed are the long bones of the limbs, and the subjects of attack are ordinarily animals at maturity, or which have reached adult life.

Anatomical Characters.—The most distinctive, or, indeed, only obvious, structural changes are in connection with the bones of the extremities. These, both in their intimate structure and covering membrane, give to the ordinary observer the idea of increased vascularity. There is not, however, as in ordinary Rickets, any increase of bulk or extra development of the extreme ends of the bones ; nor are the changes greater at the junction of these with the shaft, even when perfect ossification has not been completed. The outer shell of compact tissue is less marked by softening than by unnatural thinning, the medullary canal being of greater capacity, and the open tissue increased. Extending into the interstices of this tissue, and through the medullary canal, is abundance of soft, reddish pulp, largely made up of fat globules, nucleated cells, and blood corpuscles. This material, while extending into the extreme ends of the bones, does not induce any evident increase of bulk in these parts. The articular cartilages, although not destroyed, seem thin, and are spotted over their centres with darker-coloured markings. These look as if removal of structure might follow, but ulceration I have not met. The bones, as a whole, are not disposed to bend or alter in shape, but, from their thin and vascular condition, are very liable to fracture under trifling exertion. The periosteum is thickened throughout its entire extent, the under layer of active cells seems engaged in a formative process somewhat similar to what is observed in bone formation. The external surface of the bone shaft is less smooth and polished than in healthy animals. Other bones in the skeleton, as the scapula and pelvic bones, may in some instances give evidence of changes of a similar character.

Symptoms.—In the horse, by far the greater number of cases where I have encountered bone fragility and vascular changes of a general character have been closely linked together in the matter of causative influence. They were nearly all blood or well-bred mares of adult life, and far advanced in gestation. The bones affected were the pastern bones, larger and smaller, and the pedals. In none was this condition suspected previous to its sudden announcement by the detachment of prominent processes of these bones, to which the tendons and ligaments are attached. This fracture and detachment of bony prominences occurred apart from any appreciable inducing cause, as exertion, or sudden strain, or application of violence in any way. From these extensive structural changes, and, in some, complete destruction of locomotory powers, immediate destruction of the animals was necessary. In this way an opportunity was afforded for examination of the structures as they appeared and existed at the time of their greatest presumable fragility. This examination gave in every case the indications of moderate change in the animal constituents of the bone, a rarefaction and opening of the cancellous part, with encroachment upon the compact, commencing apparently from within and moving outwards. The animal constituents seemed, upon the whole, augmented in amount, filling the increased reticulated bone tissue; the increased vascularity and softness, together with the expansion of the cancellous structure, destroying the general power of cohesion and rendering the bones more liable to fracture. With sheep, amongst which I have observed a large amount of this bone disturbance, apart from the fatal results of the alteration—*i.e.*, their termination in fracture, and consequent slaughter—there can scarcely be said to be any preliminary indications by which the change may be detected during life. These fractures rarely occur in numbers at one time, but are irregularly distributed over a lengthened period. The causes which seem to operate in their immediate development are apparently the most trivial. The occurrence of rain sufficient to thoroughly wet

the ground, causing the sheep to dip or sink, is sufficient to operate in this manner. The rough handling of the flock with a dog, or an attempt to seize some for examination, may lead to the production of a fractured limb or two. Numerous cases, I have always observed, occur during moonlight, when the animals are easily disturbed, or, apart from disturbing influences, are disposed to gambol. In the fracture itself there are some slight differences from what occurs in a healthy bone when broken. It is attended with more effusion, and the immediately contiguous parts are at once more swollen, softer, and less well-defined. Any attempts to obtain reduction of the fracture and re-union of the parts are greatly more uncertain than in otherwise healthy animals.

3. *Osteo-porosis*.—This disorder of bone nutrition, or form of Rickets, appears rather selective as to the species of animals which it attacks, having been chiefly observed in horses. In these latter it is encountered in animals past infancy, rather during the age of puberty or maturity. Although seen amongst all varieties, and under different conditions of management, it has rarely been noticed to attack females. Its physical characters in the well-developed bone lesions are excessive expansion or rarefaction of bone tubes and bone spaces, without an increase in actual amount of earthy matter, but with a perceptible addition to the softer contents of the existing tubes and spaces. The rarefaction of the bone tissue and expansion of the Haversian system is coincident with increase of the medulla and softer contents of the canals and spaces. The greater number of the bones of the skeleton are liable to exhibit this condition of malnutrition; it, however, probably develops earlier and more perfectly in those of the head than in others.

Anatomical Characters.—By far the greater number, as well as the diagnostic, features of change are local. Generally-distributed textural alterations are only accidental, and, in great measure, arise from the local. With the exception of a somewhat pale and flabby state of the muscles of the voluntary class, a little congestion of the pulmonary tissue, much of which is hypostatic, a trifling increase of the fluid naturally existing in the serous cavities, and a softened state of the gland structures, the entire structural alterations are confined to the bones and the articulations with the different structures entering into their formation.

The periosteal covering of all the bones involved, but more particularly of such as are composed largely of cancellous tissue, is increased in vascularity and easily removed. The bone structure itself, particularly that of the bones of the head, and of the epiphyses of the long bones, is soft and easily compressed, yielding from their cut surfaces—for they may be divided with a knife—a bloody-coloured serous fluid, the open tubular structure being filled with a like coloured gelatinaform material. The main portions of the shafts of the long bones still retain a considerable portion of compact bone tissue of sufficient resistance to render them capable of resisting a knife. The articular extremities of the long bones are usually increased in size, and, although retaining around them the shell of compact tissue much as observed in health, are in their interior rarefied, and have the cancelli variously filled with either a dark, bloody-coloured fluid or a somewhat modified yellowish jelly, which, judging from the sensation imparted to the fingers, seems largely made up of fatty particles. The cartilages of encrustation are never in a perfectly healthy condition; in the majority this overlying structure is wanting in bulk, particularly at the edges, with occasional spots or erosions, when it seems wanting entirely; the colour, also, is altered from the natural pearly appearance to a dark slate or yellowish white; in this latter state the change is probably owing to the replacement of the intimate cartilaginous structure with fibrous tissue and molecules of fat. The synovial cavities of the joints contain, in the cases where the cartilage exhibits these changes, a moderate

amount of articular fluid, more viscid and darker than natural, from being mixed with the elements of extravasated blood ; this latter may, in some instances, be seen as separate coagula. The synovial membrane and investing articular capsules are thickened, and present irregularly-distributed patches of congestion.

Probably, the most exhaustive and interesting, as it is the earliest, account of this peculiar bone disease of the horse, is that given by the late Professor Varnell in the records of certain investigations carried out by him in connection with an appearance of Osteo-porosis amongst a number of horses near Reading, and published in the *Veterinarian* for 1860. In that account, it may be observed that, in addition to conditions and appearances very much analogous to those which I have noted, that the after-treatment of the bones by maceration disclosed features and peculiarities not observed in the usual after-death examination ; thus, it is there stated that "the ulceration of the articular surfaces, which seemed to be altogether confined to the cartilages of encrustation, was found, on their removal, to affect the bones beneath, and the loss of substance, however small it might be in the cartilage, extended more or less deeply into the bone, the size of the cavity increasing with its depth." This condition Professor Varnell considered, and not unfairly, as sufficient proof that the morbid process had its origin in the true bone substance, invading the cartilage at a subsequent period. It was found, further, that in cleaning the macerated bones great care was needed, lest by rough handling or undue force in detaching adhering fascia and ligament, projecting eminences were not at the same time broken off ; this I can corroborate from personal experience. When thus cleansed by maceration, the external appearance of the bones is very characteristic. Instead of the close and smooth surface of healthy bone, these are rough, and, from the dilated condition of the minute foramina giving passage to the periosteal vessels, reticulated, resembling nothing so much as fine sponge.

Symptoms of Osteo-porosis.—The evidences of the existence of this peculiar condition are both local and constitutional, the former the more important as well as the truly diagnostic. The duration of symptoms ere a fatal termination is reached varies somewhat, but is rarely short, usually extending over a period of several months, and, when once these are established, the termination is invariably fatal. Probably, the earliest of these, which are attractive, is lameness of a peculiar character, passing from one limb to another without leaving the one first affected. In some animals, impairment of mastication or visible enlargement of certain bones of the head, without apparent inconvenience or pain, may appear previous to the existence of defective movement. Manipulation over these parts and certain of the joints, which, as in Rickets, are swollen, will elicit pain. When the maxillary bones, in which the teeth are implanted, are much involved, we may notice a peculiar rolling movement in mastication, the animal frequently ceasing to feed, not because the appetite is appeased, but because of weariness and pain consequent on the performance of the act. Even when locomotion may be performed with little distinctive lameness, we may detect marked rigidity of the trunk when turned rapidly or forced to move in a backward direction, together with an audible expression of pain. The same features may be exhibited by manipulation along the course of the spinal column.

(*To be continued.*)

PATHOLOGICAL SOCIETY OF LONDON.

AT the meeting of this Society, held on May 4th, Dr. HALE WHITE showed a series of specimens illustrating the Pathological Histology of Hydrophobia from two men and one dog. The medulla oblongata was in a state of acute inflammation, for the most part limited to the floor of the fourth ventricle and the subjacent nerve-tissue for a depth of about one-third of the thickness of the medulla. It was most marked in the median line on either side of the posterior median fissure. The result of this inflammation was a general blurring of the nerve tissue, so that the normal arrangement of fibres and cells could not be made out; there were many small inflammatory cells in tissue, and under a high power of the microscope they could be seen in large numbers crowding through the walls of the vessels. The inflammatory exudation had a tendency to run in directions determined by the nerve fibres. The nerve cells were implicated, and in many places blurred and indistinct; the nuclei most affected were the vagal and hypoglossal. The dilatation of the minute vessels was extreme, and had in many cases led to their rupture; the hæmorrhages thus produced were all microscopic, and were most numerous immediately under the floor of the ventricle, so that blood could often be seen to be effused into the meshes of the pia mater, but in no place was this membrane itself ruptured. The same condition was observable in other parts of the brain, but to a much less degree, and it could be also seen in the cord to a slight extent. Thus, it will be gathered that the essential lesion in hydrophobia is an acute inflammation of the floor of the fourth ventricle, and that this spreads slightly upwards to the brain and downwards to the cord. In the salivary gland there was some blurring of the secretory epithelium, and a few leucocytes could be seen wandering about among the gland constituents. In one case there was an atrophic condition of the thyroid gland. The vagus and sympathetic nerves and every organ in the body were examined, but they were all found to be healthy with the exceptions just mentioned.

ROYAL AGRICULTURAL SOCIETY.

AT the monthly Council meeting, held on May 5th, H.R.H. the Prince of Wales, President, in the chair, Sir JOHN THOROLD stated that the Secretary had reported that, having been to France on the business of the Dairy Committee, he had seized the opportunity thus afforded him to visit Mons. Pasteur at his laboratory in the Rue d'Ulm. Having obtained an introduction from Mons. Tisserand (Director of Agriculture at the Ministry), the Secretary was at once admitted into Mons. Pasteur's private room, and, during a short interview, had received his cordial assent to the Society's desire to send a veterinary surgeon to his laboratory to study his methods of procedure with regard to the prevention and cure of certain diseases of animals of the farm by means of the attenuated virus of those specific diseases.

The Secretary had further reported that during his interview with Mons. Tisserand he was introduced to Mons. Chauveau, the author of the standard work on the "Anatomy and Physiology of the Domesticated Animals," which is well known in England through Dr. Fleming's translation. This gentleman had recently made a special study of the means of obtaining attenuated virus of diseases of animals, and of the effects produced by the use of various kinds. Having been recently appointed Inspector-General of Veterinary Schools in France, he was about to reside in Paris, and he expressed the pleasure it would give him to receive the Society's veterinary surgeons, and to give them all the aid in his power.

Professor Robertson had stated that he was prepared to go to Paris with a veterinary surgeon about the end of June.

PROCEEDINGS OF THE THIRD GENERAL MEETING
OF THE
NATIONAL VETERINARY ASSOCIATION.

(Continued from page 225.)

Mr. H. R. STANLEY : There is only one thing I should like to ask—viz., whether animals suffering from slight Pleuro-pneumonia are fit for human food? I think you may thoroughly make up your minds with reference to that. I have heard the argument in certain districts that if only a small portion of the lung is affected, it is fit for human food; *I am fully of opinion it is not*. I should not care to eat it myself, and I think we ought to set our faces firmly against others doing so. When the lungs are affected, the whole body must be so, and I do not think it should go for human food. It merely means that the ratepayers will have to pay a farthing extra in the pound, and it is not worth while to run the risk for that small sum.

Mr. GREAVES : In opposition to the opinion of Mr. Stanley, I think I may place Professor McCall's opinion before you, which is that it is only in the extreme cases of the disease that it is unfit for human food. I may tell you that in 1842 a great number of cows were destroyed and died of this disease in Manchester, and during the whole twelve months I was told that no other food was sent into the barracks; and the medical attendant told me that the soldiers had never better health than during that time.

Mr. MCGAVIN : I rise to confirm what Mr. Greaves says with regard to the consumption of animals affected with this disease. Some of us are inspectors, and it is a very responsible duty to the public and to ourselves; and the question arises what should we condemn for human food, and what should we pass? I have known some hundreds of animals killed in Scotland affected with Pleuro-pneumonia, and nearly all eaten, and I have never known any case of a person injured from consuming such food. A question I should like this meeting to settle is, in what stages should we pass the flesh of animals as fit for human food? I have seen animals affected with Anthrax—the early stages—killed and dressed for human food, and I have never known one case to interfere with the health of any person or persons who have eaten the flesh of such animals. I have also known animals under Swine Fever. I quite agree with what Mr. Rutherford mentioned about disinfection; he says that the lime merely covers over and hides the contagion of Pleuro-pneumonia. In my own experience, I have found that the best way of disinfecting any place where it is infected with the contagion is to use Calvert's Vaporiser, or heat a small heater and cover it with an iron cover, and pour carbolic acid into it. It disengages carbolic acid fumes, and the whole place is flooded with the fumes of carbolic acid, which destroys a great deal of the infection of contagious diseases. I have great pleasure in recommending that to the members here present.

Captain RUSSELL : We were talking just now about Pleuro-pneumonia subjects being fit for food. It has occurred to me, if the disease settles in the lungs, when taken through the mouth and nostrils and at the tip of the tail, how do we know that the flesh is affected at all? Has anybody ever seen the flesh affected? I have not. So soon as the lungs are affected, the muscular structure is affected. I read Professor Walley's paper, and did not see much that was new in it. I thought he had followed out the lines of "The Four Contagious Diseases," but since I have been here this morning I have learned that it is possible for a fever to exist in the body without elevating the temperature. That is new to me; I put it to you—If Pleuro-pneumonia is a contagious or infectious fever, how do you recognise it, and

account for cases, without elevation of temperature? I have not the least doubt you do have cases. There was another matter struck me: Mr. Rutherford said he never knew an outbreak to occur from a cow or bullock that had been inoculated, and then he drew the reservation—"if the animal at the time was not affected with the disease;" but if there was no elevation of the temperature in the primary stages, I take it the cattle were not suffering.

Mr. RUTHERFORD: I think I must make a few remarks before Professor Walley rises in reply to questions put. One gentleman asked, how about a case of Pleuro-pneumonia happening in an animal where inoculation had been performed seventeen days prior? Now, let me tell you that in performing inoculation over a large number of cows where infection has been, the probabilities are—and my experience points to this conclusively—that if an animal at the time of inoculation has the disease in an incubative stage, that incubation is matured much more rapidly, and you have the true disease developed long before the seventeenth day. In a paper I read some time ago, I stated that the inoculator could assure his client after the fourteenth day that all danger of the disease spreading was over. With regard to the consumption of the beef, I am not an inspector, and the question was never brought before me. My opinion is that so long as there is not complete destruction of the lung, the tissues themselves are not affected to such an extent as to injure them for consumption. When the lungs are no longer capable of performing their function the flesh should be condemned. It has happened in my experience, not once but several times, that there has been no rise of temperature. The first case was one where I had examined the temperatures of twenty or thirty animals, and I observed there was no rise in the thermometer, although the symptoms of the disease were present. In saying that the temperature does not always rise in ratio with the progress of the disease, I simply state a fact.

Professor WALLEY: I will just run through the points seriatim. Mr. Rutherford said the introduction of the virus into the tissue, resulting in the production of the lesions, showed that the disease is infectious. It does not necessarily do anything of the kind: it shows that the material is infective, but not necessarily contagious or infectious, or that it can be propagated from one animal to another through the atmosphere, in the way that infectious diseases generally are. There is one outbreak he referred to, in which a number of byres were visited by the disease, and which spread through the byres and over the canal to others. That certainly was a remarkable incident. What about all these cases? Are we to assume that every one of the owners of these byres went into the market at the same time, and that every one of them bought in a beast in the incubative stage of Pleuro-pneumonia? If so, it is a remarkable thing that at that particular period it was the only district in which Pleuro-pneumonia existed. Out of 110 to 120 byres there was no place in which Pleuro-pneumonia existed except that; and surely if this set of men purchased animals in the incubative stage of the disease, other men could have done, and naturally would have done, the same thing. So that I quite agree with Mr. Rutherford that Pleuro-pneumonia is propagated by other means than actual contact. I have made a remark that if Pleuro-pneumonia is only propagated by actual cohabitation, how is it that we have not stamped it out—how is it that the Government has not stamped it out? I do not think any man in the room will assert that it is the only means. Mr. Rutherford said he had no proof that animals inoculated ever gave the disease to other animals; he modified it by saying, if they were the subjects of the disease at the time they might so propagate it. I point this out as one of the disadvantages of inoculation: that is, an animal may have Pleuro-pneumonia in its system—in its lungs—at the time it is inoculated; the inoculative lesions become well developed; the

Pleuro-pneumonia goes on simultaneously, and the animal dies. And, on the other hand, there is a probability that the Pleuro-pneumonia lesions may become materially circumscribed, and the animal may become a centre of infection (and that frequently goes on for months and years) to every animal it comes in contact with. That corroborates the remark I made, that animals that have once had the disease become separate sources of infection. Mr. Robinson made a remark in reference to Professor Laws ; Professor Laws did not state that he had propagated Pleuro-pneumonia to a healthy animal by the introduction of a piece of sponge saturated with Pleuro-pneumonia lymph into its nostrils. He made a statement to the effect that Mr. Baldwin many years ago propagated it in that way. With reference to experiments, I do not wish to detract from the value of experiments in any shape or form ; I say that experiments, have over and over again proved to be very misleading ; and I need not quote one instance further than the experiments in Foot-and-Mouth disease to which I have alluded, when it was stated that, in consequence of those experiments, it could not be propagated from animal to animal. That was proved to be wrong. So that I look upon experiments, till verified, with a certain amount of doubt, if not suspicion. When speaking of the symptoms of the disease, Mr. Rutherford said—and several gentlemen subsequently made remarks about there being no rise of temperature in Pleuro-pneumonia—"it has been well stated by Captain Russell that if a fever exists there must necessarily be a rise of temperature." Well, now, I think a little mistake has crept in here in Captain Russell's mind. I do not believe there is a case of Pleuro-pneumonia in which a rise of temperature cannot be discovered during the disease ; and if you refer to page you will see that I say : "Variations of temperature are sometimes very marked ; it frequently lowers when effusion takes place, and I have often found it lowered from $1\frac{1}{2}$ to 5 degrees within twelve hours." That has occurred in my experience frequently. The explanation is that—when effusion takes place, the active stage of the fever has passed away and naturally the temperature lowers. I do not see anything remarkable in it, further than that it is a matter that should not be misunderstood. Mr. Simpson asks a question with reference to animals dying from inoculative lesions, and also as to the use of the flesh. In the City of Edinburgh no compensation is given for an animal dying of inoculative lesions, unless we can show at the same time some evidence of lung affection. The Privy Council takes no steps in the matter at all : they simply say, "We do not interfere with inoculation in any shape or form ; you do just as you like." It neither prevents inoculation nor allows compensation if an animal dies from it. With reference to the use of the flesh, if you refer to my paper you will find full reference as to the use of the flesh. I have said that I cannot see there can be any objection whatever to its use so long as there is no evidence of any change in the tissues ; if the flesh is firm, of a natural colour, with no effusion, moisture, or anything of the kind, I do not see that you are warranted in condemning it. Years ago, in whatever stage the disease may have been, the flesh was always sold. And now for many years, when I have had to deal with it, every good carcase has been sold by my consent ; I never refuse to give it so long as the flesh of the animal exhibits no marked change. Mr. Rutherford made the statement that he was not an inspector of flesh. In the City of Edinburgh, it is the public inspector of the markets who is empowered to say whether the flesh shall or shall not be condemned ; if any doubt arises I am myself consulted with reference to it, as is also the medical officer of health ; but I do not think it is our duty to interfere in these things unless we are specially called upon to do so. Now, going on to what I consider the most important part of the discussion, in reference to inoculation, Mr. Rutherford stated the

operation was not condemned in Scotland. You must remember the remarks I have made on that point were published in 1879, and I am in a position to say that there was at that time a great deal of opposition to it amongst the dairymen. And even during the last month an outbreak occurred, and I said to the man, "Why don't you get the cows inoculated?" and he said, "I have a great objection to it," and he lost three or four before he would consent to have the operation performed. With reference to the general success of the operation, Mr. Rutherford spoke as if I had condemned or materially objected to the operation. You will find I did nothing of the kind; on the whole, I am distinctly in favour of the operation, within certain bounds. My objection is that, I believe it can never be the means of effectually arresting the spread of Pleuro-pneumonia in this or any other country; and the fact I have pointed out, that an animal may have the disease in its lungs, although it has apparently recovered and become a centre of infection, is, I think, a strong argument against it. If inoculation is to be of any practical service, every animal in the country ought to be inoculated; and I have pointed out, what Mr. Rutherford himself has stated, that it should be an imperial and not a local question. Mr. Rutherford says you are likely to get best results if you use fresh lymph. I decidedly disagree with him in *condemning* preserved lymph. I have inoculated with lymph twelve months and two years old, preserved in glycerine, and that successfully. At the same time I candidly say, if you can get fresh lymph, use it. With reference to its preservation in tubes, it is done in the case of the human subject with regard to vaccine, and why on earth should we not do it in this case? Mr. Rutherford says there are no means of preventing Pleuro-pneumonia spreading other than by inoculation. It has happened over and over again that if an animal is taken out immediately the disease is noticed and slaughtered, the disease goes no further. I have made a remark about that on page . With reference to disinfection, I quite allow that whitewash is useless if it is put on cold. If you have lime-wash, and use it hot, I defy any germs in creation to withstand it. Lastly, in reference to Continental inoculation, I refer to page of the paper; I have given you the actual figures, and I ask you to look them over at your leisure and see what inoculation has done in comparison with what slaughter has done in the Netherlands. I am not one of those who say it is derogatory to our profession to advise slaughter. I prefer the rifle to the pole-axe. But I do say it is the duty of our profession to recommend the adoption of those measures which are best calculated to arrest the spread of a destructive disease like Pleuro-pneumonia—a disease which has killed hundreds of thousands of animals, and which will continue to do so unless some more effective measures are adopted or ordered by the Privy Council to arrest its spread.

MAJOR SUBJECT II.

SWINE FEVER—SWINE PLAGUE.*

BY PROFESSOR T. WALLEY, M.R.C.V.S., PRINCIPAL OF THE ROYAL (DICK) VETERINARY COLLEGE.

Synonyms.—Hog Cholera, Typhoid Fever and Enteric Fever of Pig, Blue Disease, Red Soldier, Measles, Pig Distemper, Contagious Pneumo-Enteritis (Klein).

* Seeing that the discussion on Pleuro-pneumonia was likely to be considerably curtailed, on account of the unfortunate incident connected with the production of the paper on that subject, the Provisional Committee accepted the offer voluntarily made by Professor Walley, to prepare a Supplementary Paper on Swine Fever, and they trust that the interest attached to this important subject at the present time will be held by the members of the Association as justifying them in cordially accepting Professor Walley's offer.

As in the case of other diseases, so in this, many synonyms have been employed to designate it, some of them referring to some characteristic external symptom, as the colour of the skin or the character of the skin eruptions; and others to some fancied resemblance in its internal lesions to those of well-known forms of disease. Unquestionably the present official synonym, "Swine Fever," or, better, "Swine Plague," is the most simple and the most useful for all practical purposes.

Definition.—A specific eruptive fever, peculiar to the pig.

Nature and Characteristics.—Many years ago, when I first became familiar with this malady, I looked upon it as a sporadic or enzootic affection, due to an altered condition of the blood, as the result of purely local causes, *e.g.*, bad hygiene and improper or impure dieting; I was of opinion, in other words, that, like *Purpura hæmorrhagica*, it was simply a blood lesion, and in my earliest lectures on the subject described it as such, and drew parallels between its lesions and those of *Purpura*. Nor did I stand alone in this estimate of its character. In America it was also mainly attributed to bad hygiene and bad dieting; but, earlier in the United States than here, it was gradually recognised as a zymotic disease and of a contagious character.

In the United States of America it was thought to be of the nature of Cholera, and this is not to be wondered at when we consider its fatality, its rapid spread, the enteric conditions with which it is associated, and the state of collapse into which its victims are sometimes thrown.

Subsequently an idea prevailed that the disease was allied to the Typhoid Fever of man, and that, too, mainly from the fact that necrotic enteric changes were common; but as early as 1876 or 1877, Klein showed that a great mistake had been made, pointing out that *the lesions of human Typhoid were confined mainly to the small intestines, and were localised in the lymph follicles thereof: and further, that the necrosed tissues on desiccation leave behind pit-like depressions and not unfrequently result in perforation; whereas in Swine Plague the ulcerative lesions are confined mainly to the large intestines (often grouped around the ileo-cæcal valve), seldom extend to the small intestines, and are still less often found in the stomach.* (I have only seen two well-marked cases of ulceration of the stomach, one specimen of which, sent to me by Mr. Kettle, I exhibit.) *The lesions are not localised in the lymph follicles, do not as a rule extend deeper than the superficial mucosa, and rarely produce perforation.* About 1878 Klein suggested that the disease ought to be designated *Contagious Pneumo-Enteritis*, and he did this on the assumption that Pneumonia was a constant lesion; in this, however, he was certainly mistaken, as I have seen numbers of instances in which lung lesions were conspicuous by their absence.

In 1877 Klein drew attention to the presence constantly, in the local lesions of the disorder, of colonies of micrococci, and to these he was evidently inclined to attribute specific properties.

At a much earlier period than this I had drawn the attention of the members of my class to the presence of micrococci in the blood and tissues of pigs which became the victims of the disease in the neighbourhood of Edinburgh.

In 1878 Klein drew attention to the fact that there existed in the peritoneal effusions and elsewhere a *bacterium* which, in its morphological characters, bears a close resemblance to the bacillus of hay infusion (*B. subtilis*), and in some respects to the *Bacillus anthracis*; the important differences being that the bacillus of Swine Fever is finer than either of the others, and although multiplying by spores, it is motile and somewhat rounder at its end. Recently Pasteur has described a dumb-bell-shaped microbium. Klein looks upon these as foreign to Swine Fever.

Not only by Klein, but by Professor Laws and others, has the virus of

Swine Fever been cultivated and attenuated, and with the modified virus animals have been inoculated, and, according to Laws, protected ; but Klein's experiments in this direction show that even after several inoculations the virus is still capable of producing specific symptoms, though the mortality is materially reduced. Not only has the pig been successfully experimented upon ; rabbits and mice are shown to be susceptible to the action of the virus, while Pasteur has also stated (though this is contradicted by Klein) that pigeons are also affected by it.

Swine Fever is no respecter of persons amongst the pig tribe. It attacks the young, the old, the fat, the lean, the well and the ill bred, the male and the female alike ; but in my experience pigs varying from six or eight weeks to several months old ("shots," as they are called in Scotland) are most susceptible, and in them the mortality is greatest, while large pigs, as sows, frequently escape it, or if attacked, recover. Young pigs *in utero* often die and are aborted, or if they survive through the normal period of parturition, are puny and short-lived ; while sucklings not unfrequently pine away one by one, until the whole litter is exterminated, even before the mother gives any evidence of being herself affected with the disease. Frequently, too, the mother will pass through the nursing stage *apparently* in good health, but after the offspring have been weaned or have died out, she will gradually emaciate, and ultimately succumb to enteric, hæmal, or pulmonary disease. There are those who attribute the death of the foetus *in utero* to the fact of its being supplied with impure blood, or to histological changes in the placenta, and not to the direct action of the virus of the disease. Such a statement has been made in reference to Anthrax, and even some of our best authorities declare *that anthrax lesions are never found in the foetus (or its blood) in utero, the placenta acting as a filter, and effectually preventing the passage of the bacilli.* To this statement I give a flat denial. *I have found extravasations and effusions into the tissues of the unborn lamb, and I have found bacilli in these products and in the blood when I have failed to find them in the blood or tissues of the mother.* In Swine Fever, as in other zymotic affections, abortion is often the salvation of the pregnant female.

Swine Fever may assume either an enzootic or an epizootic character. Probably never within the memory of the present generation of veterinary surgeons, in this or any other country, has it spread so rapidly or so widely as in the prevailing epizootic. What the determining cause of this widespread outbreak may be, it would be difficult to say ; but I am satisfied of one thing (and do not hesitate to make the assertion here), and that is, that the disease has in the past been practically left to wander as it listed ; that it has existed in certain districts (and that not always owing to the fault of the authorities) for weeks or months before it has been detected or recognised ; while during the whole of that time animals from the infected areas have been sent into surrounding districts, and have thus scattered the disease far and wide. Moreover, a remarkable amount of ignorance as to its diagnosis has been exhibited, even by veterinary surgeons, and it was on this account mainly that I suggested to the Provisional Committee of the National Veterinary Association that the subject of Swine Fever would be an appropriate one for discussion at the Birmingham meeting.

Swine Fever, perhaps more than any other similar malady, presents itself under a variety of aspects ; in other words, its visible manifestations and the localisation of its lesions in different outbreaks assume very different characters. In its clinical character it is *hydra-headed*, and this fact alone is sufficient to explain the apparent anomaly that scientific men have not always been able to recognise it when the malady has been for the first time brought under their immediate notice. Not only so, but even in one and the same outbreak it often passes through different phases ere it runs its course ; thus,

the first few animals attacked may show no external manifestations of the disease ; they may pine and waste gradually away, perhaps coughing or purging to some extent, but showing no symptom sufficiently pronounced to raise even a suspicion in the mind of the owner or the attendant as to the nature of the malady which is gradually but surely emptying the pig-styes of their occupants. At another time a number of animals are attacked with symptoms of narcotic poisoning—staggering about their styes, boring their heads against the wall, passing into a state of convulsions, foaming at the mouth, and champing the jaws or gnashing the teeth, as the pig is wont to do when under the influence of a cerebro-spinal excitant. Again, the animals appear to be suffering from rheumatic cramp, and when called upon to move not unfrequently do so with their fore legs spasmodically flexed, the motive power being supplied entirely by the hind legs. But after a time, in each of these cases, characteristic enteric, cutaneous, or pulmonary lesions are developed, and the matter is set at rest. In other outbreaks the lungs are most largely the seat of organic changes, while the existence of bowel lesions is the exception that only proves the rule ; and lastly, there are cases in which the skin and enteric lesions are so pathognomonic as to leave no doubt in the mind of the veterinary surgeon as to the nature of the malady with which he has to deal, and there are others in which no sign (external or internal) exists to show what the disease actually is.

Swine Fever is in every sense both infectious and contagious.—It is disseminated (to limited distances) through the medium of the air ; by means of such fomites as water, food, litter, urine, fæces, dung ; by other animals, *and above all by ducks, poultry, and rats* ; by contaminated conveyances, such as railway trucks, floats, carts, and vessels ; by the dirty boots and clothes of attendants ; by the actual cohabitation of healthy with diseased animals, and by direct inoculation. I was at one time inclined to think that in those outbreaks in which lung lesions were most pronounced the disease had been contracted by inhalation, while in those where bowel lesions were most prominent it had been contracted by ingestion, just as I believe is often the case in Anthrax ; but on considering the matter more closely in the light of our present knowledge of the fact that, as a rule, in most of these maladies the virus must gain access to the blood before it can produce its characteristic effects, I have been led to modify my opinion in this respect certainly. The manner in which the lesions of some of the granulomata—*e g.*, Tuberculosis, Actino-mycosis, and Gregarinosi (?)—are locally developed, according to the manner by which the fungus is introduced into the system, seem to support the view mentioned, but we must of course remember that the starting-point of at least two of the maladies referred to is at some exposed part, as the nostril or the mouth.

In a recent number of the *Journal of Veterinary Science in India*, the details of a very instructive experiment carried out by Mr. Fred. Smith, with a view of determining the method by which the virus of Anthrax is introduced into the system, are given ; and in this case the striking fact is demonstrated that while the anthrax virus was carefully administered to a horse in the form of a ball, *the resulting lesions were manifested mainly in the lungs, and but very slightly in the bowels.*

Swine Fever does not necessarily attack all animals exposed to the influence of the virus—a very large percentage escape—*nor is it in every outbreak equally fatal.* In years gone by I used to treat this malady with great success, and certainly saved fifty per cent. of the animals treated ; and even now I feel quite satisfied that numbers of pigs pass through the disease without manifesting any recognisable external symptoms, no matter how carefully they may be watched, and recover.

Does one attack of the disease protect against future attacks ?—According

to the evidence afforded by Dr. Klein's experiment on the protective value of Swine Fever virus, the question should be answered in the negative ; but in the past few months I have had the opportunity of watching several animals that during a previous epizootic were attacked by the malady and recovered, and which during the present outbreak have successfully resisted its influence.

Swine Fever, so far as I know, has never been transmitted to any other of our domestic animals, nor except experimentally to any other creature ; and while mice may be successfully inoculated with the cultivated or natural virus, the rats seem to enjoy perfect immunity from its effects—at least so I conclude from the fact that these animals cohabit with pigs (in all stages of the disease), and live with them on the most intimate terms, without showing any signs that they are in the least degree affected by the virus of the disease. Swine Fever is as pre-eminently a pig disease as is Cattle Plague a bovine disease.

The extent of vitality possessed by the virus of Swine Fever has as yet to be determined ; but of one thing I am quite assured from experience and observation, and that is, that it may retain its vitality for several weeks, if not for months, in dirt or other suitable pabula.

Its incubative stage has been shown experimentally to be confined to about four or five days, but naturally it is about ten or twelve days.

Its duration is somewhat indefinite. As in the case of Pleuro-pneumonia so here ; an animal may be labouring under the influence of the virus for many days without attracting the attention of those persons who have charge of it. On the contrary, it may be well, and dead in the course of several hours, or two or three days ; while in not a few instances it runs a sub-acute or chronic course, which may extend over several weeks, or a month or two.

SYMPTOMS AND COURSE.

The invasion of Swine Fever is sometimes very pronounced ; at others its actual existence is evidenced by indeterminate symptoms, its special characteristics being slowly and insidiously developed.

Constitutional Symptoms.

In the earlier stages there is always more or less fever, the temperature being elevated two or three degrees, the pulse increased in rapidity, the bowels constipated or relaxed, occasionally there is vomition, and sometimes a husky bronchitic cough. The animals show a marked tendency to isolate themselves, and in cold weather seek warmth by burying under litter or huddling close to their companions ; they frequently refuse to rise when recumbent, and at all times rise unwillingly and stiffly, and when made to move do so with a stiff gait, and soon show signs of exhaustion if submitted to exertion. The ears are frequently lopped, and not unfrequently present a congested appearance. The conjunctiva is injected, and there is sometimes lachrymation or discharge of a small quantity of agglutinous mucus from the inner canthus of the eyelids.

In the most advanced stages the above symptoms become aggravated and more pronounced, but their characters will depend largely on the seat of the lesions. The temperature rises to 105-6-7° F., the pulse becomes more rapid, the breathing hurried and occasionally jerky, the urine scanty and highly coloured at times, normal in character at others, *but frequently evolving a peculiar characteristic odour.* Wasting of the muscles proceeds apace, weakness increases, the movements become more unsteady, and often the hind legs are plaited one over the other. Food is refused, or only

taken in small quantities, *but there is frequently great thirst*. The irregularity of the bowels is more marked, and the *fæces* become of a dark colour, *pasty, and of a very unpleasant but characteristic odour*. In the case of pregnant sows, abortion sometimes takes place as the disease advances, many of the young pigs being dead, some decomposed. Occasionally a little blood is discharged from the conjunctivæ or the nostrils.

If the bowels are inflamed or ulcerated diarrhœa replaces constipation, the discharges being of a dirty chocolate colour or of a yellow-ochry hue, and in any case they have an abominable odour, and are sometimes passed with a jerk, and, as the end approaches, involuntarily. At other times the egesta is retained, accumulates in the large intestines, undergoes decomposition, liberates sulphuretted hydrogen, producing tympany, which gives the animal a rotund appearance, and thus deceives the careless observer—it being taken for granted by such that the patient is eating well, and consequently that there cannot be much the matter.

If the lungs are markedly affected the breathing becomes laboured as well as hurried, the cough (especially if animal excited) distressing; there may be catarrhal discharge from the nose and eyes, that from the latter causing dirt to adhere to the eyelids, thus giving the animal a very peculiar appearance. There is often a short, painful, hollow grunt, and on physical examination of the chest signs of consolidation are readily detected. *The skin of the ears and abdomen is often cyanotic*, and the extremities cold, and not infrequently foam (sometimes bloody) oozes from the nostrils, and when this takes place the breathing becomes gasping and oral.

If the brain or the cerebral meninges is involved the animal presents a stupid appearance, wanders aimlessly and mopishly about, staggers like a drunken man, and often falls helplessly over, or if excited is thrown into a state of convulsions, on the passing off of which it is left lying helplessly on its side. At other times the head is bored against a wall or thrust into a corner, or the nose is buried in the litter, producing nasal stertor; the pupils of the eyes may be contracted or dilated, and the retina may be markedly injected.

If the spinal cord or its meninges is affected there is marked muscular twitchings, clonic spasm, and partial, followed by total, paralysis.

The Local External Lesions

Are to be found in the skin. They consist of (a.) Discolorations; (b.) Vesication; (c.) Pustulation; (d.) Papulation; (e.) Sloughs; (f.) Desquamation.

(a.) THE DISCOLORATIONS *vary from a pale blue or light red to a dark livid blue, purple, or black*. At times a scarcely perceptible erythematous black is to be discerned on the skin of the abdomen, the vulva, the hocks, the ears, the throat, or the inside of the thighs; or it may be a little cyanosis (blueness) of the ears. In some cases this discoloration is diffuse, at others in discrete patches; when faint and undecided the animal should be excited a little, and the entrance of air to the lungs excluded for a short time; the discoloration of the ears is rendered more distinct by taking the pig up by the hind legs. In many instances the undecided erythema during life becomes very pronounced, and, chameleon-like, passes rapidly through various hues after the animal is stunned by a blow on the head.

In the course of a few days—hours in some cases—the discolorations become more pronounced and more permanent; at first, being due only to capillary congestion, they may pass off, but as venous congestion sets in, followed as it usually is by extravasation, the colour becomes deepened, and the cutaneous structures positively stained, and if the pig recovers, it subsequently passes through the changes seen in ecchymoses from other causes, desquamation of the cuticle taking place as it passes off; on the contrary,

the interference with the circulation is so great as to lead to necrosis, *usually arterial and consequently dry*, and sloughing.

In very many cases no pathognomonic discoloration exists; but even here it will be observed that the dermis over the lateral and inferior aspects of the body contracts a peculiar yellowish brown hue.

Cyanosis is often the result of imperfect oxidation from the existence of extensive lung lesions.

(b.) VESICATION *is rarely a primary lesion, and still more rarely is it a solitary lesion*, being usually seen during the course of the disease, the vesicles forming in the patches of healthy skin, and being usually followed by desiccation and desquamation. The bullæ associated with sphacelus may be mistaken for vesicles.

(c.) PUSTULATION, *like vesication, is rarely primary or solitary*, nor is it seen except in the most virulent cases. In some instances there is a distinct collection of pus under the epidermis, in other instances the apparent pustulation partakes more of the character of a circumscribed pemphigus, being marked by circular patches of a very dark red colour, followed by the effusion of sanguineous serum and a little pus, the fluids drying and the superficial parts of the skin becoming necrosed, giving to the patches an appearance similar to that produced by the action of a powerful escharotic, such as nitrate of silver, or in some instances like the lesions seen in a virulent septicæmia.

(To be continued.)

Parliamentary Intelligence.

House of Commons, April 20th.

VETERINARY SURGEONS IN INDIA.

In reply to Mr. J. M'CARTHY,

Mr. S. HOWARD said: As was stated to the House on March 12th last, in reply to a question from the hon. and gallant member for Holborn, a reduction in the veterinary establishment in India has been sanctioned by the Secretary of State in Council, on the recommendation of the Government of India. There is, however, so far as I am aware, no desire to alter the existing proportions of senior and junior officers in the department. There is at present no civil veterinary department in India, but the creation of a civil branch of the service is at present under consideration. No representation has been made by the Government of India that the number of skilled surgeons in the country is insufficient.

May 14th.

IRISH PORTAL INSPECTORS.

Mr. COX asked the Chief Secretary for Ireland whether he had received a memorial from the veterinary portal inspectors under the Privy Council of Ireland praying for an inquiry into and redress of certain grievances; whether the Government would place them on a footing analogous to that of the veterinary surgeons employed by the English Privy Council, and whether the Government would consider a scheme for their superannuation.

Mr. MORLEY: The memorial in question has been before me, but in present circumstances I do not think the Government would be justified in considering the question of changes in the position of these officers who, I may observe, stand at present—in most, if not all, essential particulars—very much on the same footing as similar officers in England.

Obituary.

WE have to record the death of A. J. Shorten, M.R.C.V.S., of Ipswich, who died suddenly of Apoplexy on May 1st. Mr. Shorten graduated in 1849, and was one of the best-known and most successful practitioners in the Eastern Counties. The following notice of the melancholy event is from a local paper:—"On Saturday morning, Mr. A. J. Shorten, the well-known veterinary surgeon, died very suddenly at his establishment in Museum Street, Ipswich. He got up about his usual hour in the morning, and went after breakfast into the stables. Meeting the head ostler, Henry Green, about ten minutes to ten, he went with him to a loose-box at the top of the yard, opposite the dispensary door, and told him to take the bandages off the leg of a black mare to see how she was getting on. Green was obeying his instructions, and Mr. Shorten, who a few minutes previously had been in the surgery and had lit a cigarette, was leaning over the half door of the box watching him, when suddenly he started up, put his hand to his heart with a sharp cry, and rushed away to the surgery. He had just got inside the door when he fell with his face downwards, and his head resting against a drawer. Mr. Taylor, the surgeon attached to the stables, who came in almost at the same moment, thought Mr. Shorten was looking for something, but seeing he did not move, he raised him and found him unconscious. Mr. Taylor at once sent up for Mr. G. S. Elliston, who came down immediately, but all aid was unavailing, and Mr. Shorten died in about five minutes. He had been suffering very much from inter-costal Neuralgia, and for the last six weeks had been under the care of Dr. Henry Morris (of London), and of Mr. G. S. Elliston. On Saturday morning, however, Mr. Shorten appeared to be better and more cheerful than he had been for some time past, and he said himself that he had had a better night's rest. Mr. Elliston informs us that the immediate cause of death was not connected with his illness, but was a fit of Apoplexy. Mr. Shorten, whose loss will be felt and deeply deplored, not only in Ipswich, but throughout the Eastern Counties, was a man consistently kind and good-natured to every one, never refusing to help any man or any animal out of trouble. As one of the men in the stables put it—"He was one of the best fellows that ever lived, sir. I never knew any one with a kinder heart to man or beast." And the speaker turned round quickly with a sort of choke, and began rubbing down the horse he was engaged upon with a sudden access of briskness that must have considerably astonished that animal. Not only was Mr. Shorten one of the kindest, but one of the best and most valued veterinaries in the county. Born in 1828, so that, at the time of his death he was in his 58th year, he obtained his diploma in 1849. He was a member of the Royal College of Veterinary Surgeons, Honorary Fellow of the Veterinary Medical Association, Chief Inspector for the County of Suffolk and the Borough of Ipswich under the Contagious Diseases (Animals) Act, Provincial Consulting Veterinary Surgeon to the Royal Agricultural Society of England, and he also undertook the duties of Clerk to the Ipswich Race Committee for the present year."

We are also informed of the death of Samuel A. Baker, M.R.C.V.S., of Chelmsford, who graduated in 1853; and Edward Slipper, M.R.C.V.S., of Norwich, who entered the profession so recently as 1880, and entering into partnership with Mr. Santy, of that city, gave great promise of being a credit to the profession.

The Registrar of the R.C.V.S. sends the following additions:—J. Brown, of Navenby, graduated 1841; J. Johnson, B. Auckland, graduated 1872; J. W. Winter, Natal, graduated 1836; G. Whitworth, Grantham, graduated 1876; J. Hunley, late A.V.D., graduated 1861.

Army Veterinary Department.

AT the Levée held by command of the Queen, by the Prince of Wales at St. James's Palace, on May 3rd, Veterinary Surgeon Matthews, Royal Horse Guards, was presented by Field-Marshal Sir Patrick Grant, G.C.B.

Notes and News.

LITERARY ANNOUNCEMENT.—We understand that Mr. Charles Gresswell, of Nottingham, in co-operation with Mr. George Gresswell, recently Lecturer in Physical Science under the Government of the Cape of Good Hope, have almost completed their "Veterinary Pharmacopœia and Therapeutic Guide." This work will be in accordance with the most recent discoveries of veterinary science, and will form a complete handbook for practitioners and students of veterinary medicine. We also have to announce the forthcoming production from the pens of Dr. A. Gresswell and Mr. James Brodie Gresswell, entitled, "Diseases and Disorders of the Horse," a general treatise written with the special object of serving as a guide to the intricacies of veterinary medicine and surgery, and thereby proving clearly to the public the immense advantages in the way of saving life, and ensuring and improving health, to be derived from a wide extension of the employment of the enlightened and scientific veterinary surgeon. The book will be ready at an early date, being now in the printer's hands.

RABIES AMONG FOXHOUNDS.—Owing to a serious outbreak of Rabies amongst the pack of foxhounds with which Mr. Bragg hunts the Moreton-Hampstead country, in Devon, it was recently determined to destroy the whole pack. The disease was brought into the kennels by a draft of young hounds recently purchased. This is the second pack of Mr. Bragg's that has been destroyed from a similar cause. A meeting of the hunt was called immediately with a view to replacing the pack.

A STRANGE DISEASE.—A peculiar nervous disease, with Stringhalt for a symptom, has appeared in Victoria, Australia. The Melbourne *Leader* states:—"About Beaufort several cases have resulted fatally. It is generally supposed to be caused by eating too much of that noxious weed known as flatweed in some parts, and dandelion in others, though it is not the true dandelion, but *hypochaeris radicata*. Whether the disease is really attributable to that plant we are not aware, but it is rapidly spreading over the face of the country, and being particularly luxuriant this year, it is possible that the affected horses may have eaten it to excess, and thus deranged the functions of the kidneys and other viscera."

DEATH OF A MAN FROM SWINE FEVER.—A case of death from Swine Fever is reported to have just occurred at Dunley Manor Farm, near Andover, a man named Rumbold having contracted the disease through the blood of a pig affected with Swine Fever having come in contact with a wound on his hand causing death after a few days' illness; the surgeon who had been in attendance on the unfortunate man had no hesitation in certifying that death resulted from this cause.

DECOMPOSITION AND FERMENTATION OF MILK.—A German *savant*, Dr. F. Hueppe, who has paid great attention to this subject, has just described five distinct organisms which he finds to be invariable accompaniments of lactic fermentation. One of these he isolated on nutrient gelatine in the form of white, shining, flat, minute beads. This organism has the power of transforming milk sugar and other saccharoses into lactic acid, with evolution of carbonic acid gas. It is usually found in the saliva or mucilage of the teeth. In these are two micrococci, both of which cause the production of lactic acid, but which manifest differences in their development under cultivation.

There are also two pigment-forming bacteria. These five bacteria are so different and so constant in their properties that they must, in Dr. Hueppe's opinion, be regarded as distinct species. In addition to them there is also in milk an organism which transforms milk sugar into gluconic acid.

CATTLE PLAGUE—Reports from St. Petersburg state that the Cattle Plague still exists in the provinces of Bessarabia, Volhynia, Ekaterinoslav, and Taurina. Cases of Cattle Plague are also reported from the Dutch colony, Java.

LOSSES FROM SWINE PLAGUE.—The losses from Hog Cholera last year in the United States are, according to statistics gathered by the Agricultural Department, stated to have been more than £5,000,000, and for several years past they have run from £2,000,000 to £5,000,000 annually. The Agricultural Department are carrying out painstaking experiments with a view to the prevention of the disease. The germs of the disease are shown in all stages of development. A carefully-arranged incubator is filled with delicate glass vials that contain prepared meat tea, and in this preparation germs are placed for development. These germs at various stages of development are mounted for study under a powerful microscope. In this way their various characteristics can be easily determined. Experiments in inoculation have been largely conducted upon mice, which are subject to the disease and have practically the same symptoms as swine.

HONOURS.—At the meeting of the Academy of Sciences of Paris, held on April 19th, M. Chauveau, Inspector of the French Veterinary Schools, was almost unanimously (47 votes of 50 voting) elected a member—Rural Economy Section—in the vacancy caused by the death of M. Bouley. It had been decided at a previous meeting that, in principle, only veterinary candidates should be presented to the Academy to fill this vacancy. The National Agricultural Society of France has elected M. Goubaux, Director of, and Professor at, the Alfort Veterinary School, to be a Member, *vice* M. Bouley, deceased. We heartily congratulate our distinguished colleagues for this additional and high distinction conferred upon them. Dr. Fleming has been elected an Honorary Member of the New Jersey State Veterinary Society.

TAPE-WORM IN DOGS.—Dr. J. D. Thomas has been conducting a series of investigations in the Australian Colonies, with a view to demonstrate the presence of Tape-worm (*Tænia echinococcus*) in the dogs domesticated there. In 1882 there were 30 dogs examined, and 40 per cent. of them were found to be infested with the parasite. In connection with this statement Dr. Thomas remarks as follows:—"It should be stated that nine dogs have been examined by me more recently, and that in only one of these could I find *Tænia echinococcus*. This series of dogs differed from the former one in some respects. The first group of dogs consisted of vagrant and ownerless animals that must have picked up their living largely from slaughter-houses, butchers' shops, and offal heaps. These naturally would have many opportunities of eating the viscera of slaughtered animals, cast aside as unfit for sale. When the second series was procured, a very energetic raid against unregistered dogs had been made by the police for several months, consequently many of the dogs of this group had owners, by whom they were fed, but who were unwilling to pay the registration fee required by law. In Melbourne, ten stray dogs collected in the town of Hotham (which is really a part of Melbourne) were examined on January 15th and 16th, 1883. Five of them contained *Tænia echinococcus* in greater or less number. These observations show a very alarming prevalence of this dangerous parasite in the places where inquiry into the matter have been made, and fully explain the frequency of the cystic form (hydatid) both in man and the domestic herbivora of these localities." The facts cited above afford one more argument in favour of the systematic destruction of vagrant dogs on the ground of their great danger to society.

Correspondence.**PREVENTION OF ANTHRAX.**

DEAR SIR,—I am obliged to Mr. Harold Leeney for calling attention to the apparent incompatibility of the constituents of the mixture mentioned in my communication to the Journal ; and I freely admit that, in not giving more particulars, I have laid myself open to adverse criticism. In the first place, I should have mentioned that the preparation of soda was the bicarbonate, which he will be aware is not sufficiently alkaline, when first dissolved in water, to saponify oil ; the carbolic acid, again, was in solution in glycerine. The mixture was made up in this way : three ounces of bicarbonate of soda were dissolved in water, to this was added eight ounces of whisky, then six drachms of carbolic acid in solution in glycerine, and the bottle—a twenty-four ounce one—filled with oil. A fourth part of this mixture (to which was ordered to be added half-a-tumbler of whisky, and a pint of warm water or gruel) was administered every three hours ; the linseed oil was merely added to prevent any excoriation of the mucous surfaces by the carbolic acid. It would, no doubt, have been more correct to have made up the mixture with eggs or milk, but the linseed oil was the most convenient at the time. Be that as it may, it answered the purpose required in the two cases mentioned. My experience in the treatment of Anthrax has been very much like that of Mr. Leeney, up to the present ; and I attribute the success in these two cases, in a great measure, to the fact that the medicine was on the spot, and was administered without any delay, so soon as the animals were noticed to be amiss.

If Mr. Leeney will take the trouble to make up the mixture in the way I have directed, and allow it to stand for a short time, he will find that no chemical combination has taken place, but merely a mechanical mixture, and that he will be able, first, to pour off the oil, then the carbolic acid, mixed with the spirit and water, the bicarbonate of soda being left at the bottom. Apologising for troubling you with this explanation.

Bishops Auckland, May 10th.

W. J. MULVEY, F.R.C.V.S.

MANGE AND TETANUS.

DEAR SIR,—Your Journal for June, 1884, has come into my hands. At page 469 there is a letter about Red Mange in dogs, and you in a footnote say it is very difficult, or to use your own words “particularly troublesome” to cure. I know a perfect cure for it, which, though applied externally, is so cleanly in its application that it can be used on domestic pets.

It would have afforded me great pleasure to have given you the benefit of my experience, but it has so become the fashion among veterinary surgeons to treat with scorn suggestions made by amateurs, that I withhold my information unless I am paid for it ; such payment can be placed in the hands of a referee, and if I am wrong the money can be returned to the inquirer.

I now revert to page 404 of the same issue (some eight lines from the bottom), where my name is mentioned in anything but a complimentary manner, and I would here tell Veterinary Surgeon Gerald H. Fenton that, though he stigmatises my information as that given by an amateur who cannot diagnose a case of Traumatic Tetanus, the cases put forward by me in Colonel Ryves' book were two of them patients of regularly passed M.D.'s and surgeons, and the third was the patient of a member of the same profession, and had diplomas exactly of the same value as those held by the aforesaid veterinary surgeon himself. I maintain that Traumatic Tetanus is

curable, but perhaps not in every case. Idiopathic Tetanus is easily cured ; and if any member of the profession wants to know how it is done, they have only to apply to this "amateur," who will enlighten them on being paid for giving the information.

I again repeat, I would gladly have given you the benefit of thirty-six years' experience among horses in India gratis and free for nothing, but for such conceited remarks as those made by Veterinary Surgeon Gerald H. Fenton.

C. L. BROWN, *Major-General,*
Retired Bengal Staff Corps.

THE LANCASHIRE VETERINARY MEDICAL ASSOCIATION AND THE NINTH CLAUSE.

SIR,—I have read with regret the long and egotistical letter from Mr. Greaves which appears in your Journal of this month. For any services which Mr. Greaves may have rendered to the veterinary cause, I am sure he will receive due reward from a generous profession, but I venture to think, that had he profited by his boasted experience of more than half a century, it would have suggested to him the propriety of the old adage, that "Self-praise is no recommendation," and that he would have left to other hands the public enumeration of his virtues and sacrifices.

Mr. Greaves claims that the Lancashire Association occupies the position of the first and most powerful association in Great Britain.

It was at a duly-constituted meeting of *this Association* that the resolution to which Mr. Greaves refers was passed by a considerable majority ; he, however, alleges that the resolution was passed "at the instigation or dictation of gentlemen, some of whom only *passed into the profession yesterday—as it were,*" and further, that "*such men have no locus standi*: they are men who do not know the best interests or politics of their profession ; and *who have done little or nothing for it.*"

Of the members who voted for the resolution, four have been presidents, one the treasurer, and four secretaries, and all have been active and zealous supporters of the Association, and devoted to the elevation and promotion of the profession.

With regard to the professional reputation of those members, I fear a comparison with Mr. Greaves would not be to his advantage ; and, as for myself, I am quite content to leave the verdict on my social and professional status to those people who know me, and amongst whom I practise.

Mr. Greaves himself alludes to the stormy and critical two years during which I had the honour of being President of the Association, and in which I loyally assisted the Council in their arduous labours in obtaining the Charter.

I cannot help thinking that Mr. Greaves' age and experience should have induced him to refrain from casting reflections on the capacity and services of his fellow-members, and, moreover, particularly when he presumes to lecture them for "*their petty jealousies, petty envy, conceit, and uncharitableness,*" and I trust that in your next issue he will be found to have made the apology which is due to the gentlemen whom he has so wantonly and deliberately maligned.

I have been exceedingly pained that Mr. Greaves should have publicly alleged that any reflection on Dr. Fleming was intended, and I feel sure Dr. Fleming will acquit me of any such intention.

I have known Dr. Fleming from my youth, and I yield to none in my appreciation of his life-long devotion to the profession, and the sterling integrity of his character ; nor do I question or undervalue the services or motives of the other gentlemen who were instrumental in obtaining the Charter.

But, at the same time, I am of opinion that by restricting membership of the Council and Examining Board to Fellows, the profession may be deprived of the services of some of the best and most experienced practitioners.

This defect in our great Charter can, and I hope will, be amended.

The question could have been discussed without any heat or personalities.

My experience of our Association induces me to think that the full, free, and temperate discussion of questions of this kind tends to the formation of sound opinion, and in the end to the unity of the profession.

Manchester.

ALEXANDER LAWSON, M.R.C.V.S.

SIR,—Your issue of May contains a letter from Mr. Greaves relating to the above Association and its transactions ; before attempting a reply I shall await the next meeting of the same, in order to ascertain whether Mr. Greaves is a member or not ; if he is a member, it will be my duty to call the attention of the Society to some of the epithets and expressions which the letter contains, and also to question the propriety of a member taking advantage of a public journal to make known and criticise the internal and unpublished proceedings of that Society. If Mr. Greaves is no longer a member, I trust to your courtesy to allow me to say a few words in your next.

JNO. B. WOLSTENHOLME.

MEETINGS OF VETERINARY SOCIETIES.

The next meeting of the Lancashire Veterinary Medical Association will be held at the Blackfriars Hotel, Manchester, on June 9th.

A number of papers have to be held over until next month.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from G. R. Griffith, A.V.D., Cairo ; C. Cunningham, Slaford ; R. A. Stock, Lewes ; F. Raymond, A.V.D., Woolwich ; T. Marriott, A.V.D., Central India ; W. R. Williams, London ; Major-General C. L. Brown, London ; Professor Smith, Ontario ; J. A. Munn, A.V.D., Glasgow ; G. F. Davis, A.V.D., Madras ; C. Gresty, Newcastle-on-Tyne ; C. E. Munn, Watertown, Dakota ; F. Smith, A.V.D., Aldershot ; J. Macqueen, Glasgow ; W. O. Williams, Edinburgh ; R. Rutherford, Edinburgh ; A. Lawson, Manchester ; J. B. Wolstenholme, Manchester ; G. Gresswell, Louth ; C. Hartley, Lincoln ; J. W. Ingram, Manchester ; R. W. Burke, A.V.D., Cawnpore ; A. W. Hill, London ; E. E. Bennett, A.V.D., Aldershot.

BOOKS AND PAMPHLETS : *J. M. Wehenkel*, Résumé de l'Etat Sanitaire des Animaux Domestiques pendant 1884 ; *Dr. Gordon*, New Theory and Old Practice ; *Bulletin et Mémoires de la Société Centrale de Médecine Vétérinaire* ; *A. Vachetta*, La Chirurgia Speciale degli Animali Domestici ; *C. Hugues*, Der Unterricht in der Veterinärmedizin ; *E. Decroix*, Recherches Experimentales sur la Viande de Cheval et sur les Viandes Insalubres.

JOURNALS, ETC. : *Journal of the Royal Agricultural Society of England* ; *La Clinica Veterinaria* ; *Journal of Comparative Medicine and Surgery* ; *Revista Popular de la Exposicion Rural* ; *Quarterly Journal of Veterinary Science in India* ; *Wochenschrift für Thierheilkunde und Viehzucht* ; *Echo Vétérinaire* ; *Recueil de Med. Vétérinaire* ; *American Veterinary Review* ; *Journal de Méd. Vétérinaire* ; *Journal of the National Agricultural Society of Victoria* ; *Lancet* ; *Mark Lane Express* ; *Live Stock Journal* ; *Revue Vétérinaire* ; *American Live Stock Journal* ; *Hufschmied* ; *British Medical Journal* ; *Annales de Médecine Vétérinaire*.

NEWSPAPERS : *Montreal Gazette* ; *Bristol Times and Mirror* ; *Lahore Civil and Military Gazette* ; *Brooklyn Review* ; *Scotsman*, Edinburgh.



